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foreword

THE TWO PROJECTS reported in this publication had their origin in the longtime interest of a number of organizations in research that would contribute to improving the administration of child welfare agencies. Both the Children's Bureau and the Child Welfare League of America have been concerned for many years with the expansion of child welfare services and with the most effective use of the limited resources available for these services. Many of the early studies of the Children's Bureau were directed to this end. The two studies in this publication represent a pioneer effort to apply more refined techniques for studying the effective use of these resources.

In 1951 Miss Martha Branscombe, then executive secretary of the Elizabeth McCormick Memorial Fund of Chicago, invited a group of social agency executives in that city to a series of meetings for the purpose of exploring their interests in research in social work. The following year, Miss Branscombe asked Mr. Edward E. Schwartz, then a research associate at the University of Chicago on leave from the Children's Bureau, to lead the discussions of this group. A proposal for a research project on work measurement for performance budgeting in a child placing agency was the result.

The Illinois Children's Home and Aid Society, represented in the McCormick discussion group by its executive director, Miss Lois Wildy, agreed to be the study agency. The research design was developed by Mr. Schwartz in consultation with the faculty of the School of Social Service Administration of the University of Chicago, and a report of the first four months of the project was accepted as his doctoral dissertation. The project was completed after Mr. Schwartz returned to his position in the Children's Bureau.

Before the completion of the Illinois study, Dr. Leona Baumgartner, then executive director of the New York Foundation, suggested to Mr. Schwartz a companion project to be carried on in New York City on the cost of institutional care of children. Such a project was particularly timely because the provision of State subsidies for local child care through voluntary agencies had been liberalized and there was a great deal of interest in methods for determining the actual cost of such care.

Financial support was provided by the New York Foundation and the New York Fund for Children. The late Mr. Louis H. Sobel then executive director of the Jewish Child Care Association, and the Board of that Association offered the Pleasantville Cottage School as the study agency.

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the future operation of the agency—the budget process—and the closely related process of fiscal control.

The performance budget and unit costs

The traditional budget statement of child welfare agencies, like that of most other public and voluntary service agencies, is an "objective budget" expressed in terms of proposed objects or items of expenditure, for example, salaries, travel, boarding home payment. Budget officers, legislators and the interested public find it difficult, if not impossible, to perceive from this kind of budget what the actual program of the agency is and what services it intended to deliver, to say nothing of its relationship to similar programs and to the services of other agencies.

Modern budgeting practice in public administration does not dispense with the budget statement showing object of expenditure, but subordinates it to a statement of the past and intended future uses of funds, that is, to a performance budget. A performance budget is one organized around the functions of the agency and the service that it supplies.[3] It is presented in terms of performance units and their cost. Past expenditures are shown in relation to the types and quantities of service provided; estimates of future expenditures are presented on the basis of the anticipated cost of a stated quantity of work to be performed in order to supply a given volume of service. In contrast with the objective budget, the performance budget provides for "those things to be done rather than for things to be bought."[4]

The essential elements in a performance budget are (1) a schedule of the volume of work to be completed and (2) the cost of each type of work to be performed. Determination of the schedule of work for a coming fiscal period involves such considerations as the expected nature and extent of need for services in the community reached by the agency, the relation of this agency to others which might provide the needed service, priorities to be observed by the agency as expressed in eligibility and other intake and discharge policies and practices, the content and quality of service to be provided, commitments to present staff, the possibilities of recruiting new staff, and the size of the budget request which it is believed can reasonably be made. The process of program planning is, therefore, extremely complex and though qualitative data can be most helpful as a guide, in our present state of knowledge final determinations must be made on the basis of administrative judgments and compromises in which nonmeasurable factors play a large part. An objective of administrative research is, of course, to reduce the importance of the imponderables and hence of the risk involved in administrative decisions.

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[3] John W. Hanes, A. E. Buck, and T. Coleman Andrews: *Task Force Report on Fiscal, Budgeting and Accounting Activities*, prepared for the Commission on Organization of the Executive Branch of the Government, Washington: Government Printing Office, 1948, pp. 74–77.

[4] Frederick C. Mosher: *Program Budgeting: Theory and Practice*, Chicago: Public Administration Service, 1954, p. 81. See pp. 78–79 for references to the literature and history of performance budgeting.

This inquiry is chiefly concerned with the second element in performance budgeting; namely, the estimation of each type of work to be performed. To be useful in performance budgeting, unit costs are needed that will not only describe the present situation, but which can also be used to estimate future costs. Moreover, if the budget is to be an effective instrument of administrative control, it is essential that cost data be closely related to the operations for which they are intended so that management and supervisory personnel can be given the information that will enable them to analyze from a cost point of view the work for which they are responsible.

Current difficulties in determining unit costs

The computation of unit costs involves merely the division of expenditures by the number of units for which the expenditures were made. The difficult cost question, however, in the children's agency is "Expenditures for what?" The critical problem in ascertaining unit costs has been to determine the unit which is to be priced.[5]

Like most other types of social agencies which are characterized by the use of the casework process, child welfare agencies have generally employed the "case" concept in developing their statistical counts. In child placing agencies, a case is usually a child for whom the agency has assumed responsibility for providing service. Upon acceptance of the case immediate responsibility for providing service is assigned to a caseworker and the case becomes part of his caseload until it is closed or transferred.

The number of cases in a worker's caseload is frequently used to describe not only how much he is called upon to do, that is, the extent of his responsibilities, but, by extension, the amount of work that he does, that is, his performance in discharging his responsibilities. Commonly accepted practice in the analysis of caseload data is to divide the current aggregate caseload of an agency by the number of caseworkers in the agency (or organizational unit) at a given time to get average caseload per worker. Similarly, total agency expenditures are divided by number of cases to arrive at average case cost.

In some situations, and with appropriate classification of data on type of case, valid unit costs may be obtained in this way. If an agency provides only one kind of service, for example, foster home care, and its caseload is quite stable from one fiscal period to another, dividing the number of cases receiving service during the period into the expenditures for that period is likely to give a valid and reliable figure for annual mean cost per case. The assumption of stability in the number of cases carried from period to period is, however, an important one here. Suppose, for example, during a given year there is a pronounced, but temporary, rise in intake activity. The proportion of the staff time which goes to supplying intake services to new cases as compared to time given to cases already receiving service may then be unusually high. The division of expenditures by cases receiving service during the year would then give an average which would be too high if used to estimate costs for the next fiscal period.

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[5] Edward E. Schwartz: "Developing Work Units in a Child Placing Agency," *Social Security Bulletin*, March 1955, pp. 12–16.

For adoptions, the case representing a child receiving service may be a particularly inappropriate unit for cost purposes. The components of an adoption service include work not only with the child, the natural parents and the foster family home, but also with the adoptive family. Wide variations from one fiscal period to another in the distribution of staff time as between work with the child and work on the other components going into an adoption service can produce spurious effects in average costs when computed with the case count as the denominator.

In an effort to arrive at counts which would describe more completely and accurately their work in providing service, some children's agencies have used in addition to the "case" as a unit of count, statistics on "home finding" and on "adoptive family studies." However, these measures have not been developed within a system of measurements. As a result the various units of count are not generally convertible to a common, unified base descriptive of total service, which can in turn be related to agency expenditures.

A count of adoptions completed during a given period is used by some agencies against expenditures for that period to compute unit costs. A difficulty that may be encountered here is that the duration of service may be great in relation to the length of the fiscal period. For example, if the average time elapsing between the initiation of service and the consummation of an adoption were 12 months, little more than 50 percent of the months of service devoted to a group of completed adoptions would be likely to fall within the fiscal year in which the adoptions were consummated. If the average duration were 16 months, the percentage of months of service falling in the fiscal year given to a group of adoptions completed in that year would drop to about 40 percent. These percentages indicate the extent to which the service counts used in arriving at unit cost on an "adoption completed" basis actually relate to the fiscal period being considered. The longer the average period covered by the adoption service the greater is the burden placed on the assumption that from year to year the "differences will average out."

A further shortcoming of unit costs computed directly and solely on the adoptions completed in a fiscal period is that they provide no information on the cost of the component parts of what may be a quite complex and time consuming process. Little, if any, opportunity for use of budget data for fiscal control is offered by unit costs computed exclusively on such a comprehensive basis.

Problems around the expenditure figures in cost computations constitute the second area of difficulty encountered in determining unit costs in a child placing agency. Data on total agency expenditures are generally available from the most rudimentary accounting system. However, many child placing agencies provide more than one kind of service. A characteristic combination is foster home care and adoption. Some child placing agencies provide day care, homemaker service, and service to unmarried mothers. The same casework, supervisory, and administrative staff may participate in providing two or more of these types of service. In these situations the determination of unit costs may involve the apportionment of administrative and other joint expenditures to appropriate types of service. That the statistical and accounting procedures generally employed in child welfare agencies are not adequate in separating and classifying expenditures and apportioning them to the appropriate service has been recognized and commented upon over the past fifteen years.[6]

The difficulty involved in bringing together data accounting for the use of financial resources and statistical data describing the resultant product is not peculiar to child placing agencies. In many social agencies and in many other types of nonprofit organizations, measures of the use of agency resources and of agency output can be brought together only imperfectly, or in such comprehensive form and at a point so remote from the operations represented as to be of little value for budgeting purposes. The principles and practices of cost accounting have been developed in business enterprises precisely for the purpose of closely relating expenditures to product. An informative review of some of the problems of applying cost accounting to social agencies and a description of an application to a family welfare agency have been provided by John C. Hill.[7]

The research described in the present report is based on the assumption that the chief obstacle in determining unit costs in child placing agencies is not on the fiscal side, but rather in the present inadequacy of available service statistics for describing agency output so that it can be related to agency expenditures.

In this report the terms "cost" and "expenditure" are used interchangeably. The concept of cost is, in accordance with common usage, cost to the agency, and is taken as the amount of money going through the books of the agency. "Cost" in these terms is necessarily less than "total" or "social" costs of providing service to children.

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[6] Alfred F. Whitman, "Unit Costs of Child Placement," in Edith N. H. Baylor and Elio D. Monachesi: *The Rehabilitation of Children*, New York: Harper and Brothers, 1939, pp. 541–48.

[7] John Gordon Hill: "An Approach to Cost Accounting in Social Agencies; Principles and Methods." (Unpublished Ph. D. dissertation, Graduate Department of Social Economy of Bryn Mawr College, 1954), pp. 18–26.

The work measurement approach

The nature of the work and of the output of a child placing agency is in large part responsible for the difficulty encountered in their measurement. The output is service rather than goods or material products. The characteristic type of work is not repetitive manual or clerical labor but professional social work, requiring the employment of skills and knowledge in complex undertakings.

The procedure that has been developed for ascertaining the relationship between the use of staff time and output in government agencies and in some other nonprofit operations, is known as work measurement.[8] Basic to work measurement is the development of a system of work units which describe relationship of staff activities to the functions of the agency.[9] Work units must then be quantified, by counting their frequency and the amount of staff time invested in their completion.

Work measurement procedures have been applied in the administration of parts of the Department of Defense[10] and in other Federal agencies, such as the Forest Service and the Bureau of Old Age and Survivors Insurance. Aspects of work units have also been utilized in public health nursing programs[11] and for analyzing the use of staff time in assistance agencies.[12]

Some elements of work measurement have also been employed in studies in the child welfare field, chiefly for analyzing the use of staff time or considering appropriate workloads for caseworkers.[13] The purpose of the research reported here is to explore the application of a work measurement procedure to a child placing agency, specifically to obtain data needed in performance budgeting.

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[8] U. S. Bureau of the Budget: *A Work Measurement System; Development and Use*, Washington: Government Printing Office, 1950.

[9] *The Work Unit in Federal Administration*, Public Administration Service, Publication No. 56, Chicago, 1937.

[10] Office of the Management Engineer: *Manual for the Integrated Work Measurement Program*, United States Navy Department NAVEXOS P-816, Washington, 1950.

[11] National Organization for Public Health Nursing: *A Report on the Study of Costs in Public Health Nursing*, New York: The National Organization for Public Health Nursing, 1951.

[12] Joel Gordon and Byron Hipple: *Analyzing the Use of Staff, Public Assistance Agencies*, Social Security Board, R&S Report No. 10, Federal Security Agency, Washington, 1941.

[13] Texas State Department of Public Welfare: *A Child Welfare Time Study*, Administrative Report Series 2, Austin, 1945; Allan Keith Lucas: "A Time Study, Its Use in a Child Care Agency," *Child Welfare League of America Bulletin* XXX; 1–4 (March 1944); Verne Weed: "Method of Arriving at a Case Load Figure," *Child Welfare League of America Bulletin* XXXIV: 1–4 (May 1945); Zitha R. Turitz: *An Experimental Study of Case Loads in Child Welfare Agencies*, Special Bulletin, New York: Child Welfare League of America, 1946; Roman L. Haremski: "The Caseload Standard for a Child Placement Worker," *Child Welfare* XXXVIII: 3–5 (October 1948); Lucile Browning: "A Time Study of Home Finding," *Child Welfare* XXX: 16–17 (June 1951); Ruth Weisenbaugh: "An Agency Experiments with Case Load Weightings," *Child Welfare* XXXIV: 6–19 (January 1955).

II. The Study Agency

The steps followed in this inquiry were (1) to design a work measurement procedure for a selected child placing agency, (2) to apply the procedure to a selected child placing agency and (3) to relate the work measurement results to data on agency expenditures and other agency information in order to develop a procedure for the preparation of a performance budget. A major element in the third step was the determination of unit costs. The experiences with each of these steps will be reported in subsequent chapters. For background, the present chapter will describe the study agency.

The agency in which this study was conducted is the Illinois Children's Home and Aid Society, hereinafter referred to as the ICH&A. The ICH&A founded in 1882, is a nonsectarian, voluntary, statewide child placing agency. It was a forerunner in the State children's aid movement and has pioneered in the development of services for children. The agency enjoys a reputation for high professional standards. The following description relates to the beginning of the calendar year 1954, in which the work measurement field test was initiated.

The ICH&A headquarters offices are in Chicago and from these offices direct services are provided in Cook County. Also in Cook County, at Evanston, a residential center known as the Evanston Receiving Home (ERH) is maintained for the treatment of emotionally disturbed children. The program outside of Chicago, known as "downstate," is conducted through five offices located in the following communities: Waukegan, Rockford, Champaign, East St. Louis, and Alton.

Agency objectives and organization have been stated by the executive director as follows: "The agency program is designed to meet the needs of the community which are not met by other agencies, public or private, and to accept children for whom adequate and appropriate care can be provided. The objective of the Society is the achievement of sound emotional health for all children for whom it assumes responsibility, the prevention of experiences which are damaging to the well-being of all children, and experimentation in developing better ways to serve children." [1] The agency's program for achieving these objectives takes the form of foster care and adoption service.

The program of the agency in Cook County provides for four major operating divisions, the adoption division, the foster care division, the Evanston Receiving Home and the downstate division, each headed by a director.

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[1] Wildy, Lois: "Administrative Uses of Work Measurement and Unit Costs." Unpublished paper, National Conference of Social Work, St. Louis, Mo., 1956.

The intake division, a smaller "common service" division, screens all requests for service in Cook County. A home finding unit screens inquiries from prospective foster parents, and conducts studies of homes to be used by the foster care division. Information on likely infant boarding homes is transmitted by the home finding unit to the adoption division which makes the studies of these homes. Thus, the home finding unit is responsible for both the screening and the study of homes to be used for foster care, but only for the screening of homes to be used for infant boarding. The supervisor of the home finding unit is administratively responsible to the director of the foster care division, but the staffing and operation of the unit is such that for many purposes it is regarded in the agency as a separate division and it has been so treated in this study.

The administrative staff in the agency includes the director, administrative assistant, chief accountant, statistician, director of public relations and office manager. A clinic, maintained in the agency headquarters for the medical diagnosis and treatment of children under the care of the agency, operates as a separate unit. Other centralized services include filing, transcription (of dictation for case records) switchboard, receptionist and plant maintenance.

Responsibility of major operating divisions

The adoption division has responsibility for the agency's adoption service to infants in Cook County, except for screening of prospective boarding home parents. Service to unmarried mothers in Cook County is provided for the most part by the family agencies. Most of the referrals for adoption come from these agencies, usually during the mother's pregnancy. The ICH&A accepts responsibility for the child upon birth. Upon discharge from the maternity hospital, the child is usually placed in a infant boarding home for purposes of individual care and study. From this boarding home he is placed in the adoption home. The adoption division aims to place children in their adoptive homes as early as this can be done consonant with good adoption practice. At the time of the initiation of the work measurement study, the adoption division was responsible for providing care for children who had been accepted by the agency for adoption but for whom suitable adoptive parents had not been found. During 1954, the care of all children so accepted who were not currently being considered for adoption was transferred to the foster care division.

The foster care division accepts children requiring long time rather than temporary care. Most of the children accepted are referred by the Family Court and are under ten years of age. The agency finds that the majority of children referred are emotionally disturbed at the time of referral. A comprehensive diagnostic study is undertaken to determine the needs of the child and the kind of services that are best suited for him. The agency regards foster care as treatment, and specialized resources are used as they are indicated and available. Severely disturbed children may be placed in the agency residential treatment center (ERH) or in a center operated by another agency, with continuing casework service provided by the foster care division. The agency has developed special service foster homes for children who present particularly difficult home care problems but for whom care in a residential center is not at present indicated. Older children, after leaving foster family homes or in other special status, may be given continuing supervision in independent living arrangements. The agency does not accept children for treatment in their own homes but some children may be given continuing service in their own homes after having been supervised in foster care. The agency provides for special schools and for tutoring, psychiatric and psychological services, for children who need them.

All children admitted to the Evanston Receiving Home are also under the care of the foster care division. Psychotherapy for the children in residence is provided by the casework staff of the foster care division, usually with psychiatric consultation. Upon discharge from ERH, the child is usually placed in a special service foster home with treatment conducted by the same caseworker who saw him at the ERH. The work measurement study included the work performed by the foster care division on behalf of children in residence at the ERH but did not include the work of the institutional staff itself.

The numbers of caseworker staff in the adoption, foster care and downstate divisions are shown in table 1. In addition, six graduate

Table 1.—Casework staff of the ICH&A, Jan. 4, 1954

Organizational division	Total staff	Directors and supervisors	Assistant supervisors	Caseworkers
(1)	(2)	(3)	[a] (4)	(5)
TOTAL AGENCY	53	10	5	38
Intake	2	1	....	1
Home finding	4	1	....	3
Foster care	23	3	4	[b] 16
Adoption	13	2	....	[b] 11
Downstate	11	3	1	7

[a] Assistant supervisors divide their time between providing direct casework service and supervising caseworkers.

[b] Includes one part-time worker.

students of social work, receiving supervised field work training in the agency during the field test of the work measurement procedures, were also considered as staff members for purposes of this study.

The agency's annual statistical report for 1954 showed that the number of children receiving service on January 1, 1954 in the foster care division was 402 (including those receiving service at the Evanston Receiving Home), in the adoption division 193, and in the downstate division 134.

Total expenditures by the agency in 1954 were approximately $1,035,000. Expenditures had increased during each of the previous seven years and at a faster rate than the general price level; yet during the same period, the number of children served steadily decreased. The increase in the expenditures had raised questions on the part of the agency staff and Board and other persons in the community concerned with the financing of the programs and the management of the agency.

Staff opinion held that an increasing proportion of the children being accepted for service were emotionally disturbed, and that the expense of the special resources used in their treatment was an important factor in increasing costs. However, it was also believed that this factor might be offset by the possible saving in infant boarding home payments thought to be achieved by the practice of placing children in their adoptive homes at an earlier age than had been done previously. The agency had no way of quantifying the possible effects of these and other factors on agency expenditures.

Only about 5 percent of the total income of the agency came from earnings on endowment and about 15 percent from payment by the parents or the county for the care of specific children. The remaining 80 percent of the funds used by the ICH&A come through the Chicago Community Fund, downstate community chests, and from individual contributors. In Chicago and in the downstate portion of the state, outside of the community chest areas, the agency obtains contributions through mail appeals and through personal solicitation and benefits carried out by the trustees and the members of ten affiliated women's auxiliaries. Approximately 35,000 persons made contributions directly to the Society, to make up a third of the agency's annual income. The importance to the agency of direct fund raising activities has resulted in a strong demand for data for interpretation of the program to the lay public, including data on costs of care.

The need for adequate interpretation of the use made of funds is heightened by the state-wide nature of the Society. Funds granted to the Society by the community chests in downstate areas are intended to provide for the care of children from these areas. Budget requests must be prepared for the community chests and are reviewed by chest budget committees. Likewise, a budget is presented to the

Chicago Community Fund and examined by its reviewing and budget committees.

The agency thus had an explicitly recognized need for valid and reliable cost data which could be used in a budgeting process to produce a lucid financial statement of the agency's immediately past and proposed future operations, and which would permit an equitable apportionment of cost among the different communities contributing to the support of the Society.

Prior to 1954, expenditure data were compiled on a line item basis (i. e. by object of expenditure). Estimates of future needs were made by adjusting immediately past expenditures on the basis of anticipated change in caseload. Costs were allocated between the Cook County and downstate program on the basis of an arbitrary percentage distribution formula. However, because of the kinds of problems described in chapter I, the agency was encountering great difficulty in developing a systematic method of obtaining needed unit cost data.

It should be made clear that the purpose of the study was not to analyze the reasons for changes in costs in this agency, but rather to develop and test a way of determining current costs of the different services and of estimating costs for a future period for purposes of performance budgeting.

To summarize, the considerations that led to this study being conducted in the ICH&A were as follows: (1) the Board and the executive staff of the Society, for a variety of reasons, were concerned with the problems of costs and budgeting and were interested in having this methodological exploration conducted in the agency, (2) this is a relatively large child placing agency, and it could be expected that a maximum amount of data would be produced in a given study period, (3) the casework staff of the agency is highly qualified with respect to professional social work, education and experience, and this was looked upon as favoring staff understanding in a research operation and cooperation in the study process, (4) the organization of the casework staff, and agency policies and procedures had been quite stable during the period of the study and no major changes in operations which might disrupt or make more difficult the conduct of the study were anticipated.

The study agency was selected, therefore, not because it was an average or "typical" agency, or representative of any particular group of agencies. It was, however, an agency which presented as wide a range of the problems which might be encountered in the design and application of a work measurement procedure as could be found in the geographic area in which the study project was to be conducted.

III. Distributing Expenditures to Operating Divisions

The agreement of the ICH&A in 1953 to serve as a study agency for the research in work measurement was part of a plan looking toward a long range effort to improve the fiscal management of the agency. One line of effort was to move to a system of accounting which would allow for charging as large a proportion of expenditures as possible directly to the operating divisions responsible for providing service. The second line of effort was to develop ancillary data which would permit the allocation of joint expenditures for general administrative functions and for certain central services to the operating divisions. Together these two efforts were intended to move the agency toward a type of functional accounting which would show expenditures for each of the operating divisions. From the point of view of agency operations this would give division directors the information they need to exercise appropriate fiscal control over their operations. Moreover, the charging of agency expenditures to the various divisions, which in this agency are functionally coordinate with types of service, was an essential step in relating expenditures to output.

The responsibility for the development of the functional accounting system was placed with the chief accountant. Initial work on the method of allocation of joint administrative and central service expenses was placed with the work measurement study, since both involved time study. The combined effort was known in the agency as the work unit project. The time studies of administrative and central service staff, while a relatively minor part of the total project, was seen as a necessary step toward the optimum utilization of the work measurement data.

The agency's statement of cost

The results of the agency's own effort at determination of unit costs is shown in table 2, Statement of Cost by Division for the 12 Months Ending December 31, 1954, as prepared by the chief accountant of the ICH&A.

The upper portion of the table shows the results of the effort to make direct charges, that is, expenditures which on their face seem to be chargeable in their entirety to a given function. Expenditures are charged to functions and to objects of expenditure. Objects of expenditure are listed in the stub, or extreme left hand column of the upper portion of the table. The total amount charged to each object is shown in the extreme right hand column. The intervening column headings represent the functions to which the expenditures are charged.

Four of the functions as originally classified represent major operating divisions of the agency, namely ERH, foster care, adoption and downstate. An additional two, home finding and intake, are also operating divisions but are subsidiary to the foster care and adoption divisions. Publicity is a unit providing a central service. Administration includes the remaining administrative functions. The account "unallocated children services" includes those expenditures which could not be charged elsewhere.

Approximately $784,614 or about 76 percent of the total expenditures of the agency are charged directly to the four major operating divisions.

The bottom part of the table presents the results of computations made by the chief accountant in an effort to redistribute the remaining 24 percent of expenditures to the major operating divisions. First, the combined expenditures for home finding and intake ($32,391.94) were distributed to foster care and adoption, the two major operating divisions which they serve. This sum was distributed in proportion to the direct charges made to each of these divisions. Direct charges for foster care were $417,866.48, for adoption $121,181.64, making a total of $539,048.12. The percentages applied to distribute joint charges for home finding and intake expenditures were therefore, 77.5 percent and 22.5 percent respectively, of the $32,391.94.

Entries on the line "direct expenditures as listed above" are for ERH and downstate, the same as is shown in the totals for these columns in the upper portion of the table; i.e. $109,531.36 and $136,038.04 respectively. However, for foster care and adoption the distributed portions of expenditures for home finding and intake ($25,103.75 and $7,288.19 respectively) are included. The percentage that each entry on the line "direct expenses as listed above" bears to the total of $817,009.40, is then computed. This turns out to be ERH 13.4 percent, foster care 54.2 percent, adoption 15.7 percent, downstate 16.7 percent. This percentage distribution is then applied to each of the remaining amounts to be allocated to major operating units, that is, to the $74,425.24 for the distribution of "unallocated children services," the $94,048.12 for "administrative," and the $47,599.97 for "publicity."

In general, the procedure followed by the agency was to distribute joint expenses among major operating divisions in the same proportion that direct expenditures were charged. This is, of course, an acceptable cost accounting procedure for items that cannot be distributed on a basis more relevant to the purpose of the expenditure.

Cost per child was next computed by dividing the total expenditures charged to each major operating division by the "monthly average of children served." The validity of these monthly averages as divisors and the usefulness of the resultant unit costs will be considered at a later point. It should be noted that at this time the agency was not able to arrive at unit costs for adoption or foster care service, nor for the downstate operation.

Reallocation of expenditures to operating divisions

At the beginning of the work measurement project, an effort to improve the expenditure data on which unit costs were to be computed was made, working within the limitations of the then current accounting system.

Table 3 shows a recomputation of expenditures for operating divisions. This table is presented not as a model statement of expenditures but rather as a summary statement of the procedure followed to arrive at a somewhat more precise allocation of funds than is represented in table 2, the agency's original effort.

Payments for salaries and for payroll taxes ($516,028.37) constituted almost half of the total expenditures ($1,033,082.79), and attention was directed chiefly to this item. The amount of salaries and payroll taxes directly charged to the operating divisions (ERH, foster care, adoption, downstate, home finding and intake) in the agency's original statement was $380,454.00. The jobs of persons whose salaries were included in the remaining $135,574 were examined to see: (1) if any of them related entirely to one of the operating divisions and could be charged directly to it or (2) if the salaries for the remaining jobs could be distributed on the basis of time study. It was found that direct salary charges could be increased from $380,340 to $402,191 (see table 3, line 1). It was also found feasible to allocate over $95,000 in addition, on the basis of time studies of administrative and central service personnel.

Time studies were conducted for most members of the administrative staff, the medical clinic, the accounting, transcription and filing units. It was not found feasible to conduct time studies for the public relations division, nor for staff of such central services as switchboard, receptionist, purchasing and plant maintenance.

Time studies of administrative and central service personnel were designed solely to distribute time given by such staff to the programs of the four major operating divisions, and it was not feasible or necessary to relate these time studies directly to output. Records were specially designed for each organizational unit, which would provide an approximate distribution of time by program with the least possible amount of recording. Specimens of the forms with a brief explanation of their use are found in appendix I, Administrative and Central Service Time Study Forms.

Administrative and central service staff included in the time study kept records for one week a month for each month of the study period, January–September 1954. The week's work which was recorded by each group was staggered by months. For example, the filing unit recorded on the third week in January, the second week in February, the first week in March, the fourth week in April, the third week in May, etc. This was done, of course, in order to avoid any bias resulting from the structure of the workload within working months.

The result of these time studies is shown in appendix II, Distribution to Operating Divisions of the Time of Administrative and Central Service Staff. The result of the application of the percentage distributions of time by divisions to the salaries of the staff involved is shown in table 3, line 2, "salaries distributed by time study." The sum of salaries directly charged and those distributed by time study is shown on line 3. The percentage distribution is applied to the $24,688.88 shown on line 5 "other salaries"; that is, those neither charged directly nor distributed by time study. (The only salaries omitted here are those for the public relations staff and these are distributed later, on line 12.) The same general procedure used for handling expenditures for salaries was also used for non-salary expenditures. Line 6 shows all the direct charges for expenditures other than salaries, as made in the agency's original cost statement. The largest single object of expenditure included here is "board," which accounts for about three-fourths of the total of $423,000. A new subtotal, including all charges above, is shown on line 7 and these entries form the basis for the percentage distribution of line 8. This distribution is in turn applied to the total of "other" charges shown on line 9. "Other" charges include all remaining non-salary services (such as heat, light, telephone, telegraph) for administration, which were not charged directly to an operating division, but still exclude salaries of the public relations staff. Rent paid for space used for downstate offices is included, but no charges are made for headquarters offices which are owned by the ICH&A. Line 10 then provides the new subtotal for all expenditures for the year except for the office of the director of public relations or "publicity."

The expenditure for "publicity" ($47,599.97) was distributed in two steps. First, the total was divided between Cook County and downstate on the basis of the source of funds, that is, the geographical location of the individuals and firms from whom contributions were obtained. Thirty percent, or $14,280, was so charged to downstate. The balance was charged to the operating divisions in Cook County and distributed among them, on line 12, on the basis of the percentage distribution of all other expenditures within Cook County, as shown in line 11. The distribution of total expenditures to operating divisions is shown on line 13. Expenditures for the home finding and intake services remain to be distributed to the major operating division, foster care and adoption, to which their work is directly related.

The distribution of home finding and intake service costs to major operating divisions is shown in table 4, which also presents a comparison of the results of the total reallocation with the agency's original allocation of expenditures to major operating divisions. Line 1 carries over total expenditures as shown in the preceding table. The procedures for distributing expenditures of the home finding division to foster care and adoption are as follows: Direct salary charges to the foster care and adoption divisions were totalled, the percentage of each to the total of their direct salary charges was computed, and these percentages were used to distribute direct salary charges of the home finding division. The percentage distribution of all remaining expenditures for foster care and adoption was obtained and applied to all remaining expenditures for home finding. The allocations for salaries directly charged and for other expenditures as reallocated to major operating divisions are shown on line 4 and their percentage distribution on line 5.

The percentage distribution of expenditures as recomputed (line 5), does not appear to be grossly different from that for the original allocation sum on line 7. However, for some individual divisions the differences are considerable. This can be seen more readily by looking at the percentage differences in the amounts charged to divisions by the two allocation procedures. To obtain these percentage differences the amounts in the reallocation (line 4) are subtracted from those in the original allocation (line 6) and the results posted in line 8. Line 9 is then obtained by dividing the differences in line 8 by the base in line 6.

The charges to the adoption division, for example, are then seen to be 13 percent lower under the original than under the reallocation procedure. This difference was offset by higher charges to ERH and to downstate in the original than in the reallocation. In the original allocation about three-fourths of the total expenditures were directly chargeable to one of the major divisions. These expenditures were, of course, identically charged in the reallocation. The difference in the two allocations results, therefore, from the treatment of the remaining expenditures.

To recapitulate, in the original allocation, expenditures other than direct charges were treated as follows: (1) Expenditures for home finding and intake were first distributed in a lump sum to obtain an allocation to major operating divisions on the basis of the percentage distribution of the expenditures; (2) expenditures charged to other divisions and accounts were distributed in a lump sum to major operating divisions on the basis of the percentage distribution of their expenditures.

In the reallocation the procedure was as follows: (1) The aggregate amount of direct charges were increased as much as possible; (2) joint salaries of administrative and central service personnel were distributed to major operating divisions wherever possible on the basis of time actually invested in the related service; (3) where direct charges of time distribution were not possible other measures relating to the use of the expenditures were employed in their distribution; (4) where recourse was had to distribution of joint costs on the basis of other known expenditures this was done by grouping expenditures by class and using a basis which was as similar and as closely related as possible to the joint costs to be distributed.

The experience with the two allocations serves to illustrate the extent of the differences that may be obtained in estimating the financial base for the computation of unit costs with an increase in the refinement of the allocation procedures for distributing costs among programs. Further gains in the accuracy of the distribution of expenditures were seen as possible in the study agency through improvements in the accounting system and from data to be obtained from casework staff on its use of time as related to agency function and service.

However, at this point some brief consideration must be given to the validity of the divisors "monthly average of children served" as used in the original statement of cost, table 2. When applied against total annual expenditures for adoption, the resulting unit is "cost per child" per year. This does not meet directly the need for data on unit cost per adoption. The difficulty is compounded when the monthly average of children served is used to obtain cost per child (per year) for the downstate division, thus lumping together the two different services, adoption and foster care. The use of the unit "monthly average of children served" for foster care as well as for adoption service will be considered later, along with comments on the relative effects of the expenditure base and of the unit of count on the determination of unit costs in the study agency.

Table 2.—Statement of cost by division for the 12 months ending December 31, 1954

	ERH	Administration	Publicity	Foster care	Adoption	Downstate	Home finding	Intake	Unallocated children services	Total
Salaries	$79,312.37	$58,673.59	$29,116.83	$131,097.43	$71,621.39	$61,116.33	$18,033.89	$13,287.33	$45,713.50	$507,972.66
Payroll taxes	1,435.42	908.94	434.80	1,942.30	1,115.94	1,012.24	266.96	212.16	726.95	8,055.71
Rent	....	991.20	....	....	....	3,367.00	....	....	....	4,358.20
Heat, light, and power	2,517.99	7,111.77	....	....	....	....	....	....	....	9,629.76
Insurance	828.49	2,275.68	....	....	....	....	....	....	....	3,104.17
Organization dues	....	40.00	....	....	....	15.00	....	....	1,815.00	1,870.00
Repairs and maintenance	1,879.36	5,135.45	9.00	24.55	16.05	153.06	....	13.20	614.86	7,845.53
Stationery and printing	220.82	2,604.78	398.31	28.34	6.52	127.65	.27	1.06	321.94	3,709.69
Postage	90.45	1,159.47	792.17	48.05	17.66	326.06	....	8.90	24.42	2,467.18
Telephone and telegraph	1,722.44	7,970.30	11.89	157.80	47.35	2,140.72	6.21	1.54	.55	12,058.80
Publicity and promotion	....	....	14,540.44	....	....	179.71	....	....	....	14,720.15
Transportation	1,773.18	286.10	1,804.53	5,931.21	1,650.97	6,622.77	211.83	1.00	5,127.30	23,408.89
Auditing and legal	....	1,585.88	....	....	....	....	....	....	1,054.57	2,640.45
Sundry office expense	1,317.28	2,795.13	492.00	519.19	441.29	614.12	341.71	2.73	1,206.30	7,729.75
Food	9,624.49	....	....	....	....	....	....	....	....	9,624.49
Medical	730.14	....	....	4,487.84	948.66	5,211.73	....	....	16,971.77	28,350.14
Household supplies	2,120.63	755.66	....	....	....	....	....	....	....	2,876.29
Clothing	1,809.95	....	....	31,602.99	2,933.62	5,861.49	....	....	....	42,208.05
Education	380.74	....	....	3,690.03	1,439.72	1,294.71	.50	....	142.38	6,948.08
Camps	79.00	....	....	1,200.85	7.00	75.75	....	....	....	1,362.60
Student scholarship	....	....	....	....	....	....	....	....	....	....
Board	....	....	....	233,902.68	40,776.76	46,103.84	....	....	....	320,783.28
Other social agencies	....	....	....	....	....	25.00	....	....	677.64	702.64
Allowances and recreation	3,499.63	....	....	2,941.51	48.26	1,389.19	1.35	....	....	7,879.94
Miscellaneous	188.98	1,754.17	....	291.71	110.45	401.67	1.30	....	28.06	2,776.34
Total	109,531.36	94,048.12	47,599.97	417,866.48	121,181.64	136,038.04	18,864.02	13,527.92	74,425.24	1,033,082.79
Percent to total expenditures	10.6	9.1	4.6	40.5	11.7	13.2	1.8	1.3	7.2	100.0

	Recapitulation									
	ERH		Foster care		Adoption		Downstate			
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Distribution of home finding and intake expenses	....	....	$25, 103.75	77.5	$7, 288.19	22.5	....	....	$32, 391.94	100.0
Direct expenses as listed above (home finding and intake expenses included under foster care and adoption)	$109, 531.36	13.4	442, 970.23	54.2	128, 469.83	15.7	$136, 038.04	16.7	817, 009.46	100.0
Distribution of unallocated children services expense	9, 972.98	13.4	40, 338, 48	54.2	11, 684.76	15.7	12, 429.02	16.7	74, 425.24	100.0
Distribution of administrative expense	12, 602.45	13.4	50, 974.08	54.2	14, 765.55	15.7	15, 706.04	16.7	94, 048.12	100.0
Distribution of publicity expense	6, 378.40	13.4	25, 799.18	54.2	7, 473.20	15.7	7, 949.19	16.7	47, 599.97	100.0
Total	138, 485.19	13.4	560, 081.97	54.2	162, 393.34	15.7	172, 122.29	16.7	1, 033, 082.79	100.0
Monthly average of children served	14	2.0	370	51.7	190	26.6	141	19.7	715	100.0
Cost per child	9, 891.80	....	1, 513.74	....	854.70	....	1, 220.73	....	1, 444.87	....

Table 3.—Recomputation of expenditures by operating divisions for the 12 months ending December 31, 1954

Line	Class of expenditure	Total	ERH	Foster care	Adoption	Home finding	Intake	Downstate
1	Salaries—direct charges [a]	$402, 190. 73	$80, 747. 79	$140, 408. 21	$76, 421. 54	$18, 300. 85	$15, 323. 59	$70, 988. 75
2	Salaries—distributed by time study [b]	95, 445. 97	5, 482. 56	56, 513. 83	25, 702. 57	....	....	7, 747. 01
3	Subtotal (1+2)	497, 636. 70	86, 230. 35	196, 922. 04	102, 124. 11	18, 300. 85	15, 323. 59	78, 735. 76
4	Percentage distribution	100. 0	17. 3	39. 6	20. 5	3. 7	3. 1	15. 8
5	Other salaries [c]	24, 688. 88	4, 271. 18	9, 776. 80	5, 061. 22	913. 49	765. 35	3, 900. 84
6	Non-salary—direct charges [d]	422, 805. 93	28, 783. 55	287, 902. 88	50, 495. 02	1, 399. 55	938. 45	53, 286. 48
7	Subtotal (3+5+6)	945, 131. 51	119, 285. 08	494, 601. 72	157, 680. 35	20, 613. 89	17, 027. 39	135, 923. 08
8	Percentage distribution	100. 0	12. 6	52. 3	16. 7	2. 2	1. 8	14. 4
9	Other [e]	40, 351. 31	5, 084. 26	21, 103. 74	6, 738. 67	887. 73	726. 32	5, 810. 59
10	Subtotal (7+9)	985, 482. 82	124, 369. 34	515, 705. 46	164, 419. 02	21, 501. 62	17, 753. 71	141, 733. 67
11	Percentage distribution (Cook County)	100. 0	14. 7	61. 1	19. 5	2. 6	2. 1	....
12	Publicity [f]	47, 599. 97	4, 898. 04	20, 358. 50	6, 497. 39	866. 32	699. 72	14, 280. 00
13	Total (10+12)	$1, 033, 082. 79	$129, 267. 38	$536, 063. 96	$170, 916. 41	$22, 367. 94	$18, 453. 43	$156, 013. 67

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[a] Includes salaries and payroll taxes of staff who work entirely in one of the operating divisions of the agency (ERH, foster care, adoption, downstate, home finding or intake). This includes the case work and immediately supporting stenographic and clerical staff in these divisions.

[b] Includes salaries and payroll taxes of staff performing work in relation to more than one operating division and for whom time study was feasible and indicated by the volume of expenditure involved, namely, the director's office, the agency's medical clinic, the transcription unit (stenographic pool), the accounting and filing staff.

[c] Includes salaries and payroll taxes not included in lines 1 and 2 except for publicity staff. Included in item 4 are expenditures for receptionist, switchboard operator, purchasing and plant maintenance staff. These expenditures are allocated on the basis of the percentage distribution, line 4, of the sum of salaries directly charged and those distributed on the basis of time study, as shown in line 3.

[d] Includes payments for boarding home care, medical care, clothing, education, camps, student scholarships, allowances and recreation and miscellaneous payments directly charged to individual children, and hence to the operating division which provided the care. In addition, this item includes those portions of other expenditures which were directly chargeable to operating divisions.

[e] Includes all expenditures for rent, heat, light and power, insurance and organizational dues and those portions of other non-salary expenditures which were not directly charged to one of the operating divisions, except such expenditures for publicity. Expenditures shown in line 9 were allocated on the basis of the percentage distribution, line 8, of all expenditures shown above, that is, the sum of lines 3, 5, and 6 as shown in line 7.

[f] All expenditures for publicity were distributed between downstate operations, 30 percent, and the remaining or Cook County operations, 70 percent, on the basis of the locations of individuals and firms from whom contributions were received; the expenditures for publicity thus allocated to Cook County were distributed among operating divisions in Cook County on the basis of the percentage distribution, line 11, of the sum of all other expenditures as shown in line 10. The percentage distribution in line 11 is based on the total for line 10, $985,482.82, minus the dowstate expenditures of $141,733.67, or $843,799.15 and is applied to the total of line 12, $47,599.97, minus expenditures for downstate of $14,280.00, or $33,319.97.

Line No.	Expenditures	Total	Operating divisions					
			Major operating divisions					
			ERH	Foster care	Adoption	Downstate	Home finding	Intake
	REALLOCATION							
1	Total by operating division	$1,033,082.79	$129,267.38	$536,063.96	$170,916.41	$156,013.67	$22,367.94	$18,453.43
2	Intake [a]	18,453.43	...	12,455.47	5,997.96	...	...	...
3	Homefinding [b]	22,367.94	...	15,141.09	7,226.85	...	...	...
4	Total by major operating division	1,033,082.79	129,267.38	563,660.52	184,141.22	156,013.67	...	...
5	Percentage distribution	100.0	12.5	54.6	17.8	15.2	...	...
	ORIGINAL ALLOCATION							
6	Total by major operating division	1,033,082.79	138,485.19	560,081.97	162,393.34	172,122.29	...	...
7	Percentage distribution	100.0	13.4	54.2	15.7	16.7	...	...
8	Difference in two allocations of expenditures to divisions (6+4)	0	+9,217.81	−3,578.55	−21,747.88	+16,108.62	...	...
9	Percentage difference between the two allocations to divisions (8÷6)	0	+6.6	−0.6	−13.4	+9.4	...	...

[a] Expenditures for the intake division are allocated on the basis of the proportions that the expenditures for the foster care division and the adoption division bear to the sum of such expenditure. Separate computations are made to distribute salaries directly charged to the intake division on the basis of salaries directly charged to foster care and adoption. Similarly all other expenditures charged to the intake division are distributed on the basis of the percentages that all other expenditures charged to foster care and adoption respectively are of the sum of such charges.

[b] Procedures for allocating home finding division expenditures to foster care and adoption are the same as for the intake division.

IV. Measuring the Work of the Agency

The work unit project in the ICH&A had two purposes. The first was of a research nature—to design and test a work measurement procedure for casework in a child placing agency that might be used in performance budgeting. The second purpose was developmental in nature—to apply the work measurement results to the agency's operation and to its expenditures, in order to explore the problems involved in its application to a performance budget.

The work measurement procedure was centered on the casework aspects of the agency's operation because this is seen as the characteristic process in child placing. The work measurement procedure was designed in and for the study agency but had the aim of arriving at a scheme that might be adapted to the circumstances and needs of other similar agencies.

The framework for the work measurement procedure

The chief elements of a work measurement procedure were seen as (1) devising the units of count, and (2) measuring the time invested in the performance of these units. The selection and definition of units of count go to the heart of the problem of designing a work measurement procedure. To be valid, units of count should refer to performance and completion of a specific action or a group of actions which are purposefully related to the services provided by the agency. Each unit should in itself refer to a completed service or to a part of a service that is provided as a function of the agency.

To be reliable the same unit of count should apply to the same work throughout the agency and throughout the period during which the measurements obtained can be used. This includes not only the study period but the subsequent period during which the study is used. The criterion of uniformity of kind of work here refers to an objective, operational description of what is done, not to the quality or effectiveness of the work. An important assumption made in this research is that the ongoing quality of work in the study agency as a whole would be maintained at a constant level, not only during the study period but throughout any fiscal period for which the study results would be applied.

The devising of units of count started with the idea of proceeding from the most specific to the most general units of count believed to have general applicability to the child placing field. The following general classification of units of count was arrived at:

1. Activity units
2. Work units
3. Service units

Activity units

Activity units are those which describe operationally the expenditure of casework staff time and effort. Activity units are intended to be the most detailed units for which time measurements can be obtained for a child placing agency, if it is granted that counts describing individual physical motions of professional staff are not appropriate or necessary for the purpose at hand.

Work units

Work units are counts encompassing all activities performed to complete one of the phases or steps in a sequence followed to complete a service. The work unit is a necessary part of this measurement system, because the number of service units which will be completed by a child placing agency within a study period or within the fiscal year is likely to be so small as to provide an inadequate basis for estimation. Inasmuch as they represent a more detailed classification, a group of work units is likely to be more homogeneous with respect to time used for their completion than the service units which they compose.

Service units

Service units represent the completed work or end product of the agency's operation. Inasmuch as work measurement is to be used to interpret agency program and to support a performance budget, it is essential that the end product be expressed in terms that have meaning to the lay public as well to professional social workers, and that the end product be acceptable to those reviewing the budget as being appropriate to the function of a public or community supported child placing agency.

The child placing agency is seen as an instrument for converting an input of community resources into an output of services for persons in the community. Financial resources coming into the agency are used to purchase casework time and to purchase other services and objects. Casework time is used in activities directed toward providing the services that the agency is set up to give. These services can be counted as complete units or their component parts can be counted as work units. Along with the work units completed by caseworkers, the time of other staff persons and the use of other resources purchased by the agency go into a completed service. The cost of completed services can be related to the children who receive the services and to the description of their personal and family characteristics and their relationship to the community population of which they are a part.

With this general scheme in hand, work was begun in the summer of 1953 to identify, select and define the activity units, work units, and service units to be counted. Under a plan developed with the executive of the ICH&A for introducing the study to the agency's staff, a meeting was first held with the administrative staff and the directors of divisions. This staff was oriented to the purpose and general approach of the work unit project. Particular attention was given to the demands that the work measurement procedure would make on casework staff. On advice of the group, therefore, meetings were planned with casework staff of each of the operating divisions of the agency. Before these meetings were held, preliminary work was done with the directors of the divisions and top supervisory staff in selecting and defining units of count.

The casework staff of each division was given a general orientation to the project, and the preliminary schedule of work units was then reviewed. Plans were made for a pilot study to test the units of count, the report form, and other study materials. A second series of divisional meetings were held to give instructions for the pilot study. After the results of the pilot study had been analyzed, the methodological findings were discussed at an agency-wide casework staff meeting. Instructions were then given for their recording for the work measurement study.

Staff was informed that, inasmuch as the project was viewed as part of a continuing program of management improvement, all material obtained through the work measurement procedure would be a matter of agency record. It was also made clear that, while work measurement data had a variety of possible management uses, this project was designed specifically to produce data that would be valid and reliable for determining unit costs for use in performance budgeting. It was pointed out that a lesser degree of reliability was required for data that were used for agency-wide or division-wide fiscal control than would be needed for data used for supervisory controls in relation to individual caseworkers, or for caseload assignment and management, and that any use of the data for these or other purposes should be carefully examined. The extreme dependence in this project on caseworkers for the completeness and accuracy of the data was stressed and cooperation was requested as a contribution to a research effort aimed at improving agency administration.

The fact that the study was focused on *work* rather than on the *worker* was stressed. This meant that the object of the work measurement study was not to find out what workers do with their time by having them account for their working day, but rather to find out how much staff time was currently being invested to provide a given quantity of services, at the quality level prevailing in the agency.

Service units in the study agency

In identifying, selecting and defining units of count, the procedure was to start with the terminal count—the service unit—and work back to the more detailed count—the activity unit.

The service units produced by the agency were easily identified from agency statements of function and by common staff agreement, and are defined as follows:

(1) Adoption service. This is a placement service which the agency provides to a child by arranging for him to acquire new parents legally.

(2) Foster care service. This is a service that the agency provides to a child by arranging for him to acquire substitute parents or other care in lieu of that of his own family.

These service units may be classified in a number of ways; for example, foster care service may be classified by living arrangements (foster home care, institutional care or other living arrangements). Foster care service and adoption service units can also be classified on the basis of the characteristics of the child receiving the service and the staff providing it, as well as by the time and cost involved.

From interviews with members of the staff and observations of their operations it became apparent that the output of the agency included, in fact, services in addition to adoption and foster care placement. The agency gives information and advice to persons on matters that are not immediately related to a current agency placement. For example, persons who request service from the agency for children who are clearly ineligible are referred to appropriate sources and are sometimes given additional help in making plans. Time is given to former wards of the agency in the form of information and other brief services. Families who are not at the time foster parents but who have served the agency in the past and who may be called upon again are, on their request, given advice and consultation. Field work supervision is given a few graduate students of social work.

These services do not represent primary functions of the agency; they are in support of the agency's objectives and represent in effect some of the "costs of doing business." The performing of these auxiliary services is, therefore, included in the measurement of work invested in the completion of the two basic service units. In the same way that the cost or expenditure concept is limited to money going through the agency's books, so only these services representing the agency's primary functions are recognized here.

The service units, foster care placement and adoption placement, are taken to represent the end product and the net output of the agency's operation. The content of each of these service units is further described in work measurement terms by the work units that compose them.

Work units

The work unit is a pivotal unit in this work measurement system because it is a unit that gives form to, and indicates the immediate purpose behind, the multitudinous activities carried on by the casework staff. The work units form the building blocks from which the estimate of the costs of service may later be constructed.

The task of identifying, selecting, and defining work units was approached by analyzing procedures followed by the staff in providing service. A description of these procedures or steps was obtained by interviewing key staff members, reading case records, and reviewing administrative forms and procedures. Points were sought in the flow of work which delimit phases or steps of the work process. Work units were then defined operationally, in terms of initiation and cut-off actions which serve to begin and end each recognizable and important phase of service. No effort was made to describe the work units in terms of the procedural detail followed in their performance.

The actions used to describe the beginning or end of a work unit relate to (a) the progression of work relationships between the agency and the child, or the natural parent, or the potential or actual parent-substitute or (b) physical movement of the child by the agency in providing care for him.

A high degree of reliance was placed on staff judgment as to the validity of the work units selected. Although the work units do not necessarily constitute recognizable products to the lay person, they were so selected as to be easily recognized and accepted by the workers in the study agency and, insofar as possible, by child welfare workers in other similar agencies, as representing important steps in the provision of a child placing service.

Following is a list of the work units employed in this work measurement project:

Intake Division

Request screening

Home Finding Division

Foster home screening

Foster Care Division

Foster home study
Intake study
Supervision in foster home
Supervision in institution
Supervision in independent living arrangement
Supervision in own home
Pre-adoption supervision work
Special tasks

Adoption Division

- Infant boarding home study
- Adoptive home screening
- Adoptive home study
- Intake study
- Pre-adoptive study of child in nursing home
- Supervision in infant boarding home and pre-adoption study of child
- Supervision in boarding home
- Pre-adoptive placement
- Pre-adoptive supervision
- Post-adoptive work
- Special tasks

Downstate Division

- Intake request screening
- Foster home screening
- Foster home study
- Foster care intake study
- Supervision in foster home
- Supervision in institution
- Supervision in own home
- Adoptive home screening
- Adoptive home study
- Adoptive intake study
- Pre-adoption study of child
- Pre-adoption placement process
- Pre-adoption supervision
- Adoption supervision
- Special tasks

This classification of work units was designed to cover all work done by the casework staff that could be identified as having been performed for specific children. It was recognized that the longer the list of work units the more complicated would be their use. On the other hand, it was felt that it would be more desirable to start with a detailed list and the possibility of combining units in tabulation than to start with broad work units that could not be feasibly subdivided after being recorded. The list of work units for downstate should be viewed in light of the fact that it covers the entire range of work done by the four Cook County divisions.

The only change in the list of work units which was made after the work measurement project was started was the addition of *post-adoption supervision* in the foster care division, to take care of work for children who were adopted by their foster parents after being under care of the agency for some time. However, it developed that there was a relatively small amount of post-adoption work done in either the foster care division or the adoption or downstate divisions, so that in the tabulations of the data, this work unit was combined with the work unit *special tasks* for each of the divisions. Similarly, because of the small number of children who were involved in the adoption division work unit, *pre-adoption study in nursing home*, this work unit was combined with *supervision in infant boarding home and pre-adoption study of child.*

The same category of work unit may appear in more than one division, e.g. *intake study, supervision in foster home, special tasks.* These work units were studied separately, because in their use in performance budgeting it is essential to relate expenditures of each operating division of the agency to the service that it produces.

Definitions of each work unit for the Cook County operation appear in appendix III. The definitions for the downstate operation were quite similar. The designations given to the work units were familiar to persons in the agency but the following explanations of some of these units and their place in the agency operation may be useful in following the subsequent discussion.

Intake Division

Request screening. This work unit refers to the disposition of all requests coming to the intake division. In addition to screening all Cook County requests for agency service and giving counsel and information on other available community services, the intake division handles requests for service from former wards and for reports on closed cases. Applications from prospective foster parents are included in the home finding division work unit *foster home screening;* those from prospective adoptive parents are included in the adoption division work unit *adoptive home screening.*

Foster Care Division

Supervision in independent living arrangement. This unit includes work performed in providing care to older children in residential clubs, with the cooperation of landladies or other adults who assume appropriate responsibility.

Supervision in own home. This work unit includes work for children who are being considered for or who have previously received foster placement.

Adoption

Supervision in boarding home. This work unit is used for work for children whom the agency had accepted for adoption but had not been able to place for adoption at the time of study. (Transfer of these children to the foster care division was completed by the end of 1954.)

Downstate Division

Foster home screening. This work unit includes screening of both foster homes and infant boarding homes.

The work unit *special tasks* includes all work done for children not included in other work units, and its content varies between the divisions. It includes work with former foster parents and with the adoptive families subsequent to the consummation of the adoption. It does not include tasks such as participation in staff meetings, or administrative assignments which are not related to a specific child.

In viewing categories of work units as selected against what was known of the agency operation, it was apparent from the beginning of the study that some categories represented tasks that were of such long duration that few, if any, would be completed within a fiscal year, to say nothing of a shorter study period. The average duration of work units in the category *supervision in foster care,* for example, was known to exceed five years. The decision was made therefore to tabulate time reported for *supervision in foster home* and for other work units representing continuous supervision on the basis of a child-month of care. The work units representing a child month of supervision are indicated in the instructions in appendix III and elsewhere in this report by the letter "C" (for continuous) as a prefix to the work unit code; for example, supervision in foster home is work unit C-05. The remaining work units are considered to be discrete work units; that is, not subject as work units to further subdivision.

Activity units

The third most detailed classification of units of count in this work measurement system is the activity unit. These are the most detailed counts which it seems appropriate to obtain from professional workers (for example, telephone calls, home interviews, travel, office visits). This type of unit has formed the basis of count for a large proportion of the time studies made by social agencies in the past where the emphasis was on analyzing the use of staff time.

In this work measurement project, the purpose in using the activity units was to make as concrete and specific as possible the time to be reported by the casework staff, and hence to improve the accuracy of the recording of time invested in work units. The various classifications which had been used in previous time studies of activities of the staff of social agencies were examined, and suitable adaptations for this study were agreed upon with the agency's staff.

Although data on activity units appeared to hold considerable interest for the administrative staff of the agency and have been made available to the agency, analysis of activity data was not necessary for the purposes of this research. The staff interest in activity data also led to provisions for recording the relationship to the child, if any, of the person with whom an activity was performed.

The list of activity units along with their definitions and the classification of persons with whom the activity was conducted are included in appendix III.

The application of time measurement to work units

Devising a system of units of count is the first major step in work measurement procedure; the second is applying time measures to the units of count. The general plan for obtaining time measures in this instance was to request all caseworkers and their supervisors (that is, all workers who directly provide casework service to children and their families) to report all the time which they invested in the units of count previously agreed upon. The casework staff was asked to report only that part of their time which could be identified with work for a specific child or family; they were not asked to account for all their time. Time spent in agency staff meetings, staff development activities, general administrative responsibilities, special assignments, and the like was excluded from the daily time reports.[1] Casework supervisors, for example, reported all time given to supervising a worker with respect to a particular child but not time spent on administrative or other tasks performed for the benefit of all agency children or an unidentifiable group of children.

The period to be covered by the time study was left open-ended; that is, the casework staff was asked to begin reporting on the first working day in 1954 and to continue reporting until it was determined (1) that sufficient data were available to provide reliable estimates of average time invested in the various categories of work units or (2) that it was not feasible to obtain such estimates. It did not seem desirable, in the absence of experience in work measurement in this kind of agency, to attempt to select, within a predetermined period, a sample of days, weeks, or months for study. The research required a measurement of total time invested in completing classes of work units. An intermittent sample of time would cut across the continuities of staff work on given work units and thus reduce the number of units on which complete observations would be obtained. Difficulties of a similar nature were anticipated in any attempt to sample workers. More than one worker may contribute time to a given work unit and the exclusion of some workers from a given sample might again reduce the number of work units on which complete observations would be obtained. In addition, the agency administration believed that it would be desirable from a morale point of view for the entire staff, rather than selected members, to be engaged in the study. The intention was to tabulate the data monthly so that a prompt decision could be made as to whether sufficient data had been collected to meet the requirements of the study.

Data collection

The kind of time recording first proposed to the agency staff was a "modified job ticket." This meant that each worker would maintain a record card for each work unit in which he was investing time. When his contribution to the work unit was completed the time on his record card could then be combined with that shown by other workers for this unit in order to obtain total time spent to complete the work unit.

However, many of the agency workers objected to this procedure on the grounds that it would involve them in maintaining a file of cards, carrying these with them on their field visits, and finding the proper card when a time entry was to be made. A second proposal was that each worker maintain a daily journal in which all time identifiable with specific work units would be entered. Under this proposal workers would have only one form to handle each day. This had the disadvantage of greatly increasing the amount of clerical work involved in tabulating the data. Both methods of recording data were tested in a small pilot study.

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[1] To meet the agency's interest in downstate administrative activities provision was made for such activities on the reports for every fourth week of study.

The pilot study was conducted during the week of October 18, 1953, to try out the alternative report forms, the units of count, the instructions and procedures which had been developed, and to arrive at some estimates which would be useful in making future plans for the study. For the pilot study, half of the staff used the job ticket and the other half used the daily record form. Not only was staff opinion overwhelmingly in favor of the daily record form, but it was found that workers using that form were able to identify larger proportions of their total working time with work units than did those using the job ticket form. The daily record form was therefore adopted for use by the staff of the foster care, adoption and downstate divisions. This form, known as the "casework unit record," is shown in appendix IV.

For each activity the workers were to make an entry on the casework unit record, showing the name of the child or home for which the activity was being carried on, the code of the work unit on which the worker was currently engaged with respect to the designated child or home, the code for the activity, and the relationship of the person, if any, with whom the activity was conducted. The worker was requested to make entries currently during the day and to show the time when each activity was begun and ended. It was recognized that it might not always be convenient to make entries currently. Provision was therefore made for the worker to give an estimate of the time used if he recorded an activity retroactively. Finally the worker was asked to indicate the status of the work unit at the time that the activity was completed, that is, whether the performance of the activity being recorded completed the work unit to which the activity was related. An effort was also made to determine whether the completion of the work unit included the completion of its case recording.

The job ticket idea was retained for recording the screening operations of the intake and home finding divisions, which are conducted within the office and almost entirely by telephone. Forms designed for recording screening work units for these two divisions are shown in appendix V.

It was estimated on the basis of available statistics on agency operation, and from the brief pilot study, that it would be necessary to run the work measurement project at least three to four months. The agency staff was informed of this estimate and it was pointed out that a longer study period might be necessary. The casework staff began keeping work measurement records on January 4, the first working day in 1954. After the completion of four months of recording, it was decided to continue time recording through September 1954. The plan had been to hand-tabulate data at the end of each month. The change from the job ticket to the daily journal method of data collection so increased the tabulation work that it was not possible to keep current. A shift was made to punch-card tabulation, but at the end of the four month period it was not clear whether the demands of the research for reliable work unit measurements had been met. In addition there was a growing concern about the possible effects of seasonal changes in program on the time investment in categories of work units, particularly during the summer months. To continue the study through the calendar year seemed to demand too much of the casework staff and the decision was made, in consultation with the staff, to continue only through September, with the expectation that this would give the needed safety factor and provide a reasonably adequate basis for the estimates that were needed for this project.

At the beginning of the study, in order to establish a control on work units, caseworkers listed all children and homes with whom work was in progress on January 4. Again at the end of the study, workers listed all children and homes with whom work was in progress on September 30.

The agency's statistical recording and reporting procedures were reviewed in the light of the need for statistical data, not only for the work measurement study but also for subsequent and continuing use in the budgetary process. The statistical reporting system of the agency was well established and it was found that with a few revisions of the monthly report forms and appropriate manipulation of the available data, counts on all categories of work units and related operating ratios could be produced on a continuing basis. Agency attendance records, payrolls and the financial statement previously described provided the other necessary data used in the project.

Processing the work measurement data

Casework unit reports were reviewed daily from caseworkers in Cook County and weekly from downstate, and were edited for completeness, reasonableness and accuracy. Necessary additions and corrections were made by the responsible workers.

The second step in processing the reports was clerical coding, that is, the assigning of code numbers to items not entered as codes by the caseworkers. In general, the recording was designed to require caseworkers to record only data that they alone could provide. All other processing was designed as a clerical function. For each activity, line coding included entering a case number and computing time invested from the entries in the columns "from" and "to." The entries for work unit status were checked against the initial control list and other agency records, to insure that units in process at the beginning of the study or unfinished at the end were coded as "incomplete." All other work units were coded as "complete."

A tabulating card was then punched for each activity listed on the workers "casework unit record." The layout of the activity punch card is shown in appendix VI.

The activity cards were then grouped into work units by machine-sorting by case number, work unit code, and completion status. Then the agency cards were machine-listed in these groupings and the time reported for each activity going into a work unit was added to obtain the total time invested in the work unit. A sample listing of activity cards grouped by work units is shown in appendix VII. The machine listing was edited for consistency, particularly in the sequence of work units relating to a given child or home. Corrections were made by going back to casework unit records, control lists, agency statistical cards, and other records, and occasionally to caseworkers.[2]

The machine listing of activities gave a total of all the time invested by a worker in activities relating to a given work unit; if more than one worker was involved a summary line was obtained for the time invested by all workers in all activities going into the work unit. Work unit cards representing the contribution of each worker and the total time invested by all workers were then prepared. The layout of the work unit punch cards is shown in appendix VIII.

Time shown on total and summary lines was punched directly from the machine listing of activities. The machine listing also provided directly the case number, work unit code, month completed, and status of the work with respect to completion. For work unit cards representing one worker's time the worker's code was also obtained directly from the machine listing. Total and summary lines were manually coded for class of card to be punched, that is, whether the total time represented the work of one worker or more than one worker. The class of card code also indicated whether one or more than one activity was included in the work unit and whether the line represented a continuous or discrete work unit.

The work unit cards formed the basis for the tabulation of work measurement results. In preparing the tabulation shown in the next chapter, only tabulating cards representing work units that were worked on and completed entirely within the study period are used. Cards representing incomplete work units, for example, those that were in process before the beginning of the study or at the end of the study, are excluded. Only cards representing total casework staff time are included; cards representing the contribution of one of several workers to a work unit are excluded from the summary tabulations.

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[2] Statistical editing of the machine listing was done simultaneously with the coding of selected items on the listing. This combined process was found to be very time-consuming and laborious. In a subsequent study in the Pleasantville College School, where the sequence of work units going into a completed service was relatively short and simple, it was found possible to rely entirely on the control and editing of the workers daily reports. This meant that the machine listing of activities could be omitted and work unit cards were mechanically punched after machine grouping of activity cards.

Discrete work units are counted as of the month of completion. Time may be given to discrete work units during each of a series of months, but the total time is shown for the month in which the unit was completed.

The decision to measure tasks involving supervision in continuous work units representing a child-month of care has already been mentioned. An attendant problem was the treatment of a child-month of care in which no time was invested. What should be done, for example, if a caseworker gives time to supervising a child in a foster home in January, February, April and May but gives no time in March? The decision was made to code a "zero" work unit for March.

This procedure may suggest the rather difficult concept of a unit of work without an investment of time. However, the validity of the "zero" work unit concept depends upon the fact that the calendar month or any other time period represents an arbitrary subtotal of a process extending over time. Other things being equal, the number of "zero" work units is determined by the length of the time period which defines the continuous work unit. For example, if two-monthly periods rather than monthly periods were chosen the number of "zero" units would tend to be halved; if weekly periods were chosen the number of "zero" units, representing periods when the worker did not give time to the child, would tend to be quadrupled. The month is chosen as the arbitrary period here because it is the conventional period for reporting agency services and expenditures.

In order to arrive at a valid mean time for continuous work units covering a long span of service for a given child, it is necessary, therefore, to include "zero" work units. This was done by checking on the sequence of months shown on the listing of activities after they were grouped into work units, and writing in the data where appropriate for a "zero" work unit card to be punched. In the tabulations in chapter IV these are coded as work units completed.

V. Work Measurement Results

The purpose of the time study in this work measurement project was to arrive at the average time used by the casework staff of the study agency to complete each of the various categories of work units or types of tasks performed in the course of providing service to children. These averages can be used to estimate unit costs during the study period. More important, if the averages determined are sufficiently reliable, they can be used as multipliers against a proposed schedule of work for a future fiscal period to obtain estimates of staff and unit costs which can then serve as the basis for a performance budget.

Work unit data obtained for the ICH&A work measurement study are summarized in table 5, Time Reported for Work Units Completed Within the Period January–September 1954 by Type of Work Unit and Month Completed. Each category of work unit is reported in column 1 under the organizational division in which the work was done. For convenience in presentation the code numbers in parentheses preceding the work unit titles are sometimes used in subsequent tables and text without the titles.

The number of units of each type of work completed entirely within the period noted in column 2 is shown in column 3. The aggregate number of minutes used for each type of unit is shown in column 4. The aggregate time for work units divided by the number of work units gives the mean time for completing a work unit, as shown in column 5.

Categories of work units describing a screening operation, for example, work units 01, 02, 04, 21, and 22, are shown to be quite numerous and of short average duration. Conversely, fewer work units describing the more time consuming processes such as foster home study, intake study, and the adoption placement process (work units 03, 04, and 17) were completed during the study. For most categories of continuous work units, representing a child-month of care, both the number of units reported and the mean time were relatively high.

For the study as a whole the great preponderance of the aggregate time reported falls into the "continuous" work unit categories. This is, in part, a result of the large size of the foster care program of the agency, particularly in Cook County, where continuous longtime care with relatively low turnover of children is best described by the "child-month of supervision" type of work unit. On the other hand, in the adoption process with its more segmented sequence of operations, time given to discrete work units exceeded that for continuous work units both in the Cook County and downstate adoption service.

The distribution of the time data for each category of work unit is given in appendix VIII. The skewed distribution of many of the work units makes it appear that the median rather than the mean might be a more descriptive average. However, throughout this study the average used is uniformly the mean because of its advantages for computation and analysis in the context of this research. For example, the multiplication of the mean time by the number of units completed in a given category will give the aggregate time invested in that type of work, whereas the multiplication of the median time by the number of units would not equal the total time involved and such time estimates could not be equated with total expenditure data.

A simulated estimating situation

An empirical analysis of the work measurement procedures and results and a demonstration of this use is provided in table 6, Comparison of Observed Time for Work Units Completed April–September with Estimated Time Based on January, January–February, and January–March, 1954, Work Unit Means. This table represents the results of a kind of ex post facto experiment. Columns 2–4 present the mean time for completion of each category of work unit in the first 3 months of the work measurement project. To permit valid intermonth comparisons the means representing the average time for completing categories of continuous work units are here adjusted on the basis of the ratio of the number of work days in the month of completion to the average number of working days in the months January–September inclusive.

The problem posed by this table is whether the averages obtained in the first three months of the time study, January–March, could be used to estimate the amount of staff time which would be employed in a future schedule of work. In agency practice the schedule of work for a coming year would be the result of the total agency process of program planning. For the purpose of this simulated test, the volume and kind of work which was in fact completed in the period April–September (column 5) is used as the schedule of work whose completion time is to be estimated.

The number of work units of each category (column 5) is multiplied by the mean times for January, January–February, and January–March (columns 2, 3, and 4) to obtain the amounts of time (columns 6, 7, and 8) which would have been used to complete the work schedule for April through September had the mean times shown for the earlier months continued to prevail throughout the study period. The estimates in columns 6, 7, and 8 are then compared with the actual time as reported by the agency staff (column 9) and the differences appear in columns 10, 11, and 12.

The degree of precision or accuracy required in statistical estimates depends, of course, on the use to be made of them. In introducing the work measurement project to the study agency it was agreed with the agency executive that for use in performance budgeting it would be helpful and adequate if staff needs for a future period could be estimated within the amount of staff time contributed by one worker. This was taken to mean a permissible margin of error of one caseworker's time for the agency as a whole. It was hoped that the same margin would hold for each of the major operation divisions, that is, Cook County foster care and adoption divisions, and the downstate division.

Caseworkers (exclusive of directors, supervisors, and assistant supervisors) in the major operating divisions were able during the nine months period of the study, to identify an average 6,088 minutes per month or 73 percent of their working time, with specific work units. Of the 6,088 minutes, 183 were for work units that were not entirely completed within the study period, leaving a balance of 5,905 per worker per month for completed work units. To be within the"one caseworker margin of error" the difference between observed and estimated time for the six months estimates, April through September, shown in column 12 would have had to be less than six times 5,905 or 35,430 minutes.

The difference between observed time and estimates based on only the first month of the work measurement experience exceeded the one worker standard for the total agency and for two of the three operating divisions. The difference between the observed time and the estimated time based on January means (column 10) was 126,357 for the total agency, 66,421 for the adoption division, and 37,974 for downstate.

Using estimates based on two months data, January and February, the difference (column 11) for the agency as a whole was only slightly over the standard, while the differences for each of the major operating divisions was well below 35,340 minutes, or the one worker standard.

The third trial, employing three months of data produced differences (column 12) which were well within the one worker standard for the agency as a whole, and for two of the three major operating divisions. The differences for the foster care division was only slightly—less than 7 percent—over the standard.

Viewed on a relative basis, as well as against an absolute standard, the differences between the estimates based on January–March means, for example, and the observed time are quite modest. For the agency as a whole, the differences is 0.04 percent of the observed time, for the foster care division, 4.5 percent; adoption division, 8.7 percent and downstate, 10.2 percent.

The low net differences shown in table 6 for organizational divisions are the result in part of off-setting or compensating over- and underestimates. Estimates for discrete and continuous work units are grouped together in table 6 to show the pattern of these differences. Estimates for all categories of discrete work units for the entire agency of 231,241 (January means), 305,548 (January–February means), and 330,548 (January–March means), are all under the observed time of 468,871. Conversely each of the total estimates for continuous work units for January, January–February, and January–March are overestimates.

The majority of the work unit categories adhered to this general pattern and the subtotals for discrete and continuous work units within the major organizational divisions also show that in terms of time involved discrete work units were consistently under-estimated and continuous work units were consistently over-estimated. This was the result of a tendency for the mean time of discrete work units to increase during the study period and for the mean time of continuous work units, after being standardized for the number of working days during the month, to decrease during the summer months toward the end of the time study experience.

The tendency for the mean time of those discrete work units which represent processes completed over a period of a number of months to increase relates to the way in which these work units were counted. Inasmuch as discrete work units were counted only if completed entirely within the study period, and counted as of the months in which they were completed, units counted in the early months of the study are likely to be those to which a relatively small amount of time was given. With additional months of study, the opportunity was increased for completion of the more time consuming jobs and the monthly means tended to move up, and then to level off. Estimates of time to complete discrete work units based on total observations in a study period may tend to understate the true mean time for categories of such work units. The longer the study period in relation to the average span of time covered by the units in a given category, the less important the understatement is likely to be.

The movement of the monthly means of categories of continuous work units is of a different kind. The means of the continuous work units fluctuate from month to month, with some tendency for a decline in the summer months. Some factors entering into this decline are staff vacation schedules, temporary removal of older children from foster homes for camp or other vacation plans, and what might be termed reporting erosion or attrition, that is, the tendency of worker discipline in full reporting to decline as the reporting requirements continued over a long period of time. Staff vacations resulted in more zero work units and work units with low time input during the summer months. The data on percentage of total work time reported in work units also indicate a falling off toward the end of the study; that is, in the latter months of the study caseworkers were able to identify a smaller portion of their time with specific work units. This would affect both continuous and discrete work units, but was likely to be offset in the case of discrete work units by the "built-in" tendency for the means of this type of work unit first to increase and then to level off as the study progressed.

The usefulness of work unit means for estimating future staff time is not necessarily dependent on the interplay of the factors mentioned here as affecting discrete and continuous work units. In table 6, the first month's data, the first 2 months data, and finally the first 3 months data, were used successively to estimate the last 6 months of the study. In a previous report,[1] presenting an analysis of only the first 4 months of data, other combinations were tried. The means for the first, the first and second, and the first, second and third months of data were used to estimate the fourth month of experience. These trials, which did not, for example, include the summer season, produced results quite similar to those described above.

Variance of monthly means of work units

The simulated estimating experiences described in table 6 and in the preceding report suggest that for the study agency (with appropriate checks on assumptions regarding stability of operation) the work measurement experience could have met an administrative need, namely the need for estimating staff required in a future period as a basis for a performance budget. However, while these results may be empirically appealing and are, in fact, highly suggestive, they cannot be regarded as offering statistical evidence as to the reliability of the work unit means. From a statistical point of view, table 5 must be regarded as presenting nothing more than the experience of three special cases, supported by three interrelated special cases described in a preceding report.

The question remains as to whether the results obtained were due to the particular months selected for study and comparison. This question is examined statistically by testing the assumption that the work units measured in each of the 9 months of the study are samples from the same universe of work units. The answer to this question for each category of work units is sought through the analysis of variance which is summarized in table 7.[2] The variance between the 9 months means for each category of work unit is shown in column 5. The variance for each of the 9 months of data around their means are then taken and averaged. The average variance within months is shown in column 6. If the 9 monthly groups of data were from universes with different means, the variance between means (column 5) would usually be significantly larger than the average variance within months (column 6). The variance ratio shown in column 8 is the between-months-variance (column 5) divided by the within-months-variance (column 6).

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[1] Edward E. Schwartz: "Work Measurement for Performance Budgeting in a Child-Placing Agency." (Unpublished Ph.D. dissertation, School of Social Service Administration, University of Chicago, 1955.)

[2] The analysis of variance is a procedure for testing for significance of differences among a set of means in which every combination of means is considered simultaneously. The computation employed to arrive at the results shown in table 7 follow George W. Snedecor, Statistical Methods (Ames: Iowa State College Press, 1948) pp. 232–234. This test assumes a number of conditions, such as independence of the variables (in this case, work units), normality in their distribution and homogeneity in their variance, all of which are not completely met by the work unit data. For example, the data shown in appendix 8 indicates that all categories are skewed to the right rather than following a normal distribution. However, the large number of units included in the sample may tend to offset this apparent difficulty.

The values for the ratios in column 7, for the great majority of the work unit categories, are sufficiently small to support the view that differences among the monthly means are sampling variations. Only three categories of work units (02, 12, 32) give evidence of differences which are statistically significant. These are all "home screening units" and together they represented only 6.4 percent of the total time reported for completed work units in the 9-month study period.

The analysis of variance does not indicate significant differences among the means for remaining work units, and the assumption remains that the 9 different months of work unit data are samples drawn from the same universe. For further analysis as well as for application of the work measurement results to the operation of the study agency, the 9 months of data are therefore combined and treated as one sample.

Standard error of work unit means

Measures of the reliability of the means of the work units in the entire sample, that is, of all those completed in the 9 months period, are shown in table 8. The standard error of the mean of each category of work units, and of categories combined for organizational divisions, and for the agency as a whole, appears in column 4. Approximately 2.6 times the standard error can be taken as confidence limits at the one percent level of significance. For example, for work unit 01, with an observed mean time of 32 minutes, the true mean can be said to lie between 26.8 and 37.2 minutes, unless a one in a hundred chance has occurred in sampling. In estimating mean time per month for a category of work units for a 12-month period, as in budgeting for the coming fiscal period, the estimates from a base period of 9 months would be subject to a standard error of about 1.3 times the standard error of the mean time for the 9 months.[3] The relation of the standard error to the mean of each category is shown in column 5.

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[3] The sampling variance of the difference between the means in the base period and the means in the period to be estimated will include the variance of both. The variance of means for a 12 month sample can be assumed to be 9/12 of that for a 9-month sample. Therefore the standard error of the difference between the means can be approximated by $\sqrt{1+9/12}$, or about 1.3 times the standard error of the means for the base period.

It can be seen that categories for which large numbers of work units were completed have, in general, low standard errors. For example, all categories in which more than 300 units were completed (work units 01, 02, C–05, C–06, 12, C–15, C–18, 32, C–38) have relative standard errors under 7 percent. Conversely, only one category having less than 300 units, work unit 33, has a relative standard error below 7 percent. Although only 14 of the 32 categories of work units had relative standard errors of 10 percent or less, these were the categories that were the most important in terms of the investment of staff time; together they accounted for about four-fifths (79.2 percent) of total time reported.

The relative standard error for each of the three major operating divisions, and for the agency as a whole, was 4 percent or less; 2 percent for the agency as a whole, 2 percent for the foster care division, 4 percent for the adoption division, and 4 percent for downstate.

Summary of work measurement findings

Data presented here suggest an affirmative answer to the central problem of this research, which is whether valid and reliable units of count can be obtained for a child placing agency. The claim for validity of the work units is the claim of face validity, deriving from the logic of their development. A simulated estimating situation demonstrates the use of the work unit means for a one-, two- and three-month study period in estimating staff time needed to complete a work schedule for a subsequent six-month period. The results of an analysis of variance of work unit means used in the simulated estimating experience, while not conclusive, indicate that the monthly differences between the means of the large majority of categories which account for a great preponderance of the time reported, is not significant. This supports the view that these data are random samples from the same universe.

The low relative standard error for categories of work units accounting for the great preponderance of time given to completed work units, and the low relative standard errors for each of the major operating divisions and for the agency as a whole, is taken as indicative of the reliability of the work units for the purpose for which they were designed.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes—	
			Aggregate time (4)	Mean time (5)
Intake: [b]				
(01) Request screening	January–September	690	21, 925	32
	January	81	2, 110	26
	February	88	2, 100	24
	March	106	3, 425	32
	April	77	2, 840	37
	May	65	2, 550	39
	June	77	2, 895	38
	July	59	1, 460	25
	August	49	1, 280	26
	September	88	3, 265	37
Home finding: [b]				
(02) Foster home screening	January–September	1, 131	57, 408	51
	January	74	895	12
	February	81	2, 090	26
	March	106	3, 426	32
	April	130	8, 050	62
	May	145	7, 091	49
	June	148	6, 961	47
	July	108	7, 560	70
	August	150	8, 730	58
	September	189	12, 605	67
Foster care: [b]				
(03) Foster home study	January–September	37	45, 324	1, 225
	January	1	420	420
	February	0	....	....
	March	0	....	....
	April	5	7, 263	1, 453
	May	4	2, 035	509
	June	2	470	235
	July	4	14, 337	3, 584
	August	7	6, 799	971
	September	14	14, 000	1, 000

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a]	Month	No. of work units	Minutes—	
			Aggregate time	Mean time
(1)	(2)	(3)	(4)	(5)
Foster care: [b]**—Continued**				
(04) Intake study	January–September	12	4, 610	384
	January	0	....	....
	February	0	....	....
	March	0	....	....
	April	1	340	340
	May	0	....	....
	June	0	....	....
	July	0	....	....
	August	1	309	309
	September	10	3, 961	396
(C–05) Supervision in foster home.	January–September	2, 608	729, 025	280
	January	299	78, 704	263
	February	301	77, 575	258
	March	296	98, 744	334
	April	294	96, 943	330
	May	290	85, 065	293
	June	292	77, 804	267
	July	287	68, 370	238
	August	282	70, 641	251
	September	267	75, 179	282
(C–06) Supervision in institution.	January–September	484	419, 572	867
	January	54	49, 935	925
	February	52	46, 876	901
	March	53	57, 246	1, 080
	April	52	48, 502	933
	May	53	46, 039	869
	June	56	47, 590	850
	July	58	54, 212	935
	August	54	30, 383	563
	September	52	38, 789	746

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes— Aggregate time (4)	Minutes— Mean time (5)
Foster care—Continued				
(C–07) Supervision in independent living arrangement.	January–September	142	22, 870	161
	January	16	3, 370	211
	February	16	2, 321	145
	March	17	2, 280	134
	April	16	1, 211	76
	May	17	2, 091	123
	June	14	2, 134	152
	July	17	4, 148	244
	August	14	2, 743	196
	September	15	2, 572	172
(C–08) Supervision in own home.	January–September	178	37, 732	212
	January	17	4, 191	247
	February	16	2, 555	160
	March	18	3, 005	167
	April	19	3, 798	200
	May	19	5, 374	283
	June	21	6, 351	302
	July	21	4, 465	213
	August	25	4, 564	183
	September	22	3, 429	156
(09) Special task	January–September	110	7, 916	72
	January	16	611	38
	February	10	732	73
	March	15	1, 304	87
	April	23	1, 933	84
	May	9	991	110
	June	7	465	66
	July	11	540	49
	August	9	911	101
	September	10	429	43

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes—	
			Aggregate time (4)	Mean time (5)
Adoption: [b]				
(11) Infant boarding home study.	January–September	39	20, 950	537
	January	1	90	90
	February	......	....	....
	March	2	55	28
	April	2	1, 388	669
	May	4	1, 158	290
	June	5	1, 836	367
	July	5	443	89
	August	5	3, 672	734
	September	15	12, 308	821
(12) Adoptive home screening.	January–September	977	56, 263	58
	January	96	3, 723	39
	February	95	3, 735	39
	March	116	8, 595	74
	April	84	6, 785	81
	May	94	4, 957	53
	June	192	7, 369	38
	July	154	8, 730	57
	August	71	6, 631	93
	September	75	5, 738	77
(13) Adoptive home study	January–September	143	83, 925	587
	January	4	165	41
	February	5	555	111
	March	9	1, 649	183
	April	10	6, 709	671
	May	19	12, 977	683
	June	23	16, 192	704
	July	15	10, 755	717
	August	22	8, 844	402
	September	36	26, 079	724

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a]	Month	No. of work units	Minutes—	
			Aggregate time	Mean time
(1)	(2)	(3)	(4)	(5)
Adoption—Continued				
(14) Intake study	January–September	54	13, 527	251
	January	4	610	153
	February	8	3, 680	460
	March	2	313	157
	April	3	299	100
	May	3	700	233
	June	5	678	136
	July	7	2, 477	354
	August	8	1, 180	148
	September	14	3, 590	256
(C–15) Supervision in infant boarding home and pre-adoption study of child.	January–September	383	96, 044	251
	January	44	11, 156	254
	February	49	15, 177	310
	March	46	14, 406	313
	April	45	13, 217	294
	May	37	7, 309	198
	June	38	11, 269	297
	July	39	6, 771	174
	August	43	9, 040	210
	September	42	7, 699	183
(C–16) Supervision in boarding home.[c]	January–September	230	67, 569	294
	January	29	10, 371	370
	February	29	7, 256	250
	March	29	9, 037	312
	April	29	7, 364	254
	May	23	7, 143	311
	June	24	8, 732	364
	July	23	4, 071	177
	August	23	7, 059	307
	September	21	6, 176	294

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes—	
			Aggregate time (4)	Mean time (5)
Adoption—Continued				
(17) Pre-adoption placement process.	January–September	63	85,051	1,350
	January	1	1,740	1,740
	February	5	12,082	2,416
	March	7	9,290	1,327
	April	13	14,729	1,133
	May	6	3,750	625
	June	3	4,387	1,462
	July	5	17,343	3,469
	August	10	10,644	1,064
	September	13	11,086	853
(C–18) Pre-adoption supervision.	January–September	853	106,224	125
	January	83	9,526	115
	February	87	9,322	107
	March	89	12,078	136
	April	100	10,909	109
	May	98	12,883	132
	June	100	14,320	143
	July	95	12,977	137
	August	99	13,383	135
	September	102	10,826	106
(19) Special task	January–September	91	10,099	111
	January	9	537	60
	February	12	3,225	269
	March	9	886	98
	April	15	1,745	116
	May	8	571	71
	June	8	925	116
	July	12	889	74
	August	9	751	83
	September	9	570	63

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes— Aggregate time (4)	Minutes— Mean time (5)
Downstate:				
(21) Intake request screening.	January–September	180	13, 939	77
	January	16	696	44
	February	16	1, 479	92
	March	21	2, 863	136
	April	18	1, 975	110
	May	14	863	62
	June	27	1, 916	71
	July	22	1, 386	63
	August	29	1, 472	51
	September	17	1, 289	76
(22) Foster home screening[d]	January–September	122	7, 500	61
	January	10	394	39
	February	12	840	70
	March	8	900	113
	April	7	467	67
	May	23	1, 520	66
	June	14	776	55
	July	16	781	49
	August	10	903	90
	September	22	919	42
(23) Foster home study [d]	January–September	38	7, 591	200
	January	2	100	50
	February	1	10	10
	March	11	2, 859	260
	April	3	1, 340	447
	May	2	15	8
	June	5	1, 060	212
	July	5	810	162
	August	6	525	88
	September	3	872	291

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes— Aggregate time (4)	Minutes— Mean time (5)
Downstate—Continued				
(24) Foster care intake study.	January–September	19	5,014	264
	January	....	....	....
	February	6	1,703	284
	March	2	256	128
	April	1	5	5
	May	1	9	9
	June	1	120	120
	July	2	290	145
	August	3	456	152
	September	3	2,175	725
(C-25) Supervision in foster home.	January–September	254	71,170	280
	January	28	10,118	361
	February	32	10,579	331
	March	33	13,386	406
	April	32	7,644	239
	May	30	6,344	211
	June	26	3,287	126
	July	27	6,655	246
	August	26	5,363	206
	September	20	7,794	390
(C-26) Supervision in institution.	January–September	76	21,295	280
	January	6	1,504	251
	February	7	1,320	189
	March	9	2,029	225
	April	9	2,624	292
	May	10	2,396	240
	June	9	2,187	243
	July	11	3,336	303
	August	7	2,085	298
	September	8	3,814	477

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes— Aggregate time (4)	Minutes— Mean time (5)
Downstate—Continued				
(C–27) Supervision in own home.	January–September	53	8, 975	169
	January	1	85	85
	February	6	652	109
	March	3	1, 329	443
	April	5	1, 569	314
	May	6	1, 706	284
	June	6	1, 905	318
	July	7	612	87
	August	8	495	62
	September	11	622	57
(32) Adoptive home screening.	January–September	305	23, 853	78
	January	23	981	43
	February	33	1, 805	55
	March	25	2, 117	85
	April	31	4, 168	134
	May	25	1, 374	55
	June	42	3, 093	74
	July	37	2, 369	64
	August	44	3, 226	73
	September	45	4, 720	105
(33) Adoptive home study	January–September	56	27, 739	495
	January	2	60	30
	February	......	....	....
	March	5	2, 430	486
	April	8	2, 721	340
	May	7	5, 542	792
	June	8	5, 217	652
	July	4	1, 012	253
	August	10	3, 708	371
	September	12	7, 049	587

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes— Aggregate time (4)	Minutes— Mean time (5)
Downstate—Continued				
(34) Adoption intake study	January–September	65	40, 921	630
	January	5	885	177
	February	9	4, 344	483
	March	11	4, 088	372
	April	6	2, 881	480
	May	6	11, 490	1, 915
	June	7	4, 984	712
	July	10	6, 060	606
	August	2	503	252
	September	9	5, 686	632
(C–35) Supervision in infant boarding home and pre-adoption study of child.	January–September	227	76, 201	336
	January	21	7, 126	339
	February	23	7, 312	318
	March	26	14, 832	570
	April	23	7, 629	332
	May	25	10, 493	420
	June	22	6, 357	289
	July	32	10, 200	319
	August	28	6, 544	234
	September	27	5, 708	211
(37) Pre-adoption placement process.	January–September	37	33, 586	908
	January	2	2, 244	1, 122
	February	3	2, 551	850
	March	6	8, 131	1, 355
	April	3	1, 774	591
	May	7	7, 485	1, 069
	June	3	1, 826	609
	July	2	2, 022	1, 011
	August	9	6, 538	726
	September	2	1, 015	508

See footnotes at end of table.

Table 5.—Time reported for work units completed within the period January–September 1954 by type of work unit and month completed—Continued

Organizational division and type of work unit [a] (1)	Month (2)	No. of work units (3)	Minutes— Aggregate time (4)	Minutes— Mean time (5)
Downstate—Continued (C–38) Pre-adoption supervision.	January–September	464	48, 669	105
	January	50	5, 240	105
	February	47	5, 984	127
	March	58	6, 832	118
	April	58	7, 664	132
	May	54	4, 210	78
	June	51	7, 014	138
	July	47	4, 177	89
	August	49	4, 720	96
	September	50	2, 828	57
(39) Special task	January–September	126	14, 656	116
	January	9	309	34
	February	16	2, 618	164
	March	5	220	44
	April	10	824	82
	May	8	1, 194	149
	June	18	2, 954	164
	July	14	1, 265	90
	August	24	1, 845	77
	September	22	3, 427	156

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[a] The prefix "C" to the work unit codes identifies categories of continuous work units. Such work units represent a child-month of supervision. Categories of work units not designated with "C" represent tasks that are best measured in their entirety rather than in child-months of work performed.

[b] This is a Cook County operation.

[c] This category relates to children who were first accepted for adoption but for whom it was later decided that adoption did not seem likely. These children were transferred from the adoption division to the foster care division during the latter part of 1954.

[d] Includes work on infant boarding homes.

Table 6.—Comparison of observed time for work units completed April–September, with estimated time based on January, January–February, and January–March, 1954, work unit means

[Time in minutes]

	Mean time [a]			No. of work units completed Apr.–Sept.	Time to complete Apr.–Sept. work units estimated on basis of—			Observed time	Differences between observed time and estimates based on—		
	Jan.	Jan.–Feb.	Jan.–Mar.		Jan. means	Jan.–Feb. means	Jan.–Mar. means		Jan. means	Jan.–Feb. means	Jan.–Mar. means
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Grand Total—Agency					1, 434, 032	1, 520, 008	1, 559, 563	1, 560, 389	−126, 357	−40, 381	−826
Discrete work units					231, 241	305, 548	330, 596	468, 871	−237, 630	−163, 323	−138, 275
Continuous work units					1, 202, 791	1, 214, 460	1, 228, 967	1, 091, 518	+111, 273	+122, 942	+137, 449
Intake (01)—Total	26	25	28	415	10, 790	10, 375	11, 620	14, 290	−3, 500	−3, 915	−2, 670
Home finding (02)—Total	12	19	25	870	10, 440	16, 530	21, 750	50, 997	−40, 557	−34, 467	−29, 247
Foster care—Total					859, 275	865, 806	874, 921	837, 180	+22, 095	+28, 626	+37, 741
Discrete work units—Subtotal					17, 742	18, 708	19, 605	54, 783	−37, 041	−36, 075	−35, 178
(03)	420	420	420	36	15, 120	15, 120	15, 120	44, 904	−29, 784	−29, 784	−29, 784
(04)	0	0	0	12				4, 610	−4, 610	−4, 610	−4, 610
(09)	38	52	65	69	2, 622	3, 588	4, 485	5, 269	−2, 647	−1, 681	−784
Continuous work units—Subtotal					841, 533	847, 098	855, 316	782, 397	+59, 136	+64, 701	+72, 919
(C–05)	276	281	289	1, 712	472, 512	481, 072	494, 768	474, 002	−1, 490	+7, 070	+20, 766
(C–06)	971	986	985	325	315, 575	320, 450	320, 125	265, 515	+50, 060	+54, 935	+54, 610
(C–07)	221	191	167	93	20, 553	17, 763	15, 531	14, 899	+5, 654	+2, 864	+632
(C–08)	259	219	196	127	32, 893	27, 813	24, 892	27, 981	+4, 912	−168	−3, 089

See footnote at end of table.

Table 6.—Comparison of observed time for work units completed April–September, with estimated time based on January, January–February, and January–March, 1954, work unit means—Continued

[Time in minutes]

	Mean time [a]			No. of work units completed Apr.–Sept.	Time to complete Apr.–Sept. work units estimated on basis of—			Observed time	Differences between observed time and estimates based on—		
	Jan.	Jan.–Feb.	Jan.–Mar.		Jan. means	Jan.–Feb. means	Jan.–Mar. means		Jan. means	Jan.–Feb. means	Jan.–Mar. means
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Adoption—Total	....	....	....	....	323, 603	375, 134	356, 055	390, 024	−66, 421	−14, 890	−33, 969
Discrete work units—Subtotal	....	....	....	....	131, 275	179, 809	164, 583	218, 885	−87, 610	−39, 076	−54, 302
(11)	90	90	48	36	3, 240	3, 240	1, 728	20, 805	−17, 565	−17, 565	−19, 077
(12)	39	39	52	670	26, 130	26, 130	34, 840	40, 210	−14, 080	−14, 080	−5, 370
(13)	41	80	132	125	5, 125	10, 000	16, 500	81, 556	−76, 431	−71, 556	−65, 056
(14)	153	358	329	40	6, 120	14, 320	13, 160	8, 924	−2, 804	+5, 396	+4, 236
(17)	1, 740	2, 304	1, 778	50	87, 000	115, 200	88, 900	61, 939	+25, 061	+53, 261	+26, 961
(19)	60	179	155	61	3, 660	10, 919	9, 455	5, 451	−1, 791	+5, 468	+4, 004
Continuous work units—Subtotal	....	....	....	....	192, 328	195, 325	191, 472	171, 139	+21, 189	+24, 186	+20, 333
(C–15)	266	307	300	244	64, 904	74, 908	73, 200	55, 305	+9, 599	+19, 603	+17, 895
(C–16)	376	327	312	143	53, 768	46, 761	44, 616	40, 536	+13, 232	+6, 225	+4, 080
(C–18)	124	124	124	594	73, 656	73, 656	73, 656	75, 298	−1, 642	−1, 642	−1, 642
Downstate—Total	....	....	....	....	229, 924	252, 163	295, 217	267, 898	−37, 974	−15, 735	+27, 319
Discrete work units—Total	....	....	....	....	60, 894	80, 126	113, 038	129, 916	−68, 922	−49, 790	−16, 878
(21) Subtotal	44	68	95	127	5, 588	8, 636	12, 065	8, 901	−3, 313	−265	+3, 164
(22)	39	56	71	92	3, 588	5, 152	6, 532	5, 366	−1, 778	−214	+1, 166

(23)	50	37	212	24	1, 200	888	5, 088	4, 622	−3, 422	−3, 734	+466
(24)	0	284	245	11	0	3, 124	2, 695	3, 055	−3, 055	+69	−360
(32)	43	50	61	224	9, 632	11, 200	13, 664	18, 950	−9, 318	−7, 750	−5, 286
(33)	30	0	356	49	1, 470	0	17, 444	25, 249	−23, 779	−25, 249	−7, 805
(34)	177	374	373	40	7, 080	14, 960	14, 920	31, 604	−24, 524	−16, 644	−16, 684
(37)	1, 122	959	1, 175	26	29, 172	24, 934	30, 550	20, 660	+8, 512	+4, 274	+9, 890
(39)	34	117	105	96	3, 264	11, 232	10, 080	11, 509	−8, 245	−277	−1, 429
Continuous work units—Subtotal					168, 930	172, 037	182, 179	137, 982	+30, 948	+34, 055	+44, 197
(C–25)	379	373	371	161	61, 019	60, 053	59, 731	37, 087	+23, 932	+22, 966	+22, 644
(C–26)	263	234	222	54	14, 202	12, 636	11, 988	16, 442	−2, 240	−3, 806	−4, 454
(C–27)	89	116	202	43	3, 827	4, 988	8, 686	6, 909	−3, 082	−1, 921	+1, 777
(C–35)	356	355	416	157	55, 892	55, 735	65, 312	46, 931	+8, 961	+8, 804	+18, 381
(C–38)	110	125	118	309	33, 990	38, 625	36, 462	30, 613	+3, 377	+8, 012	+5, 849

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[a] The means representing average time for completing categories of continuous work units are adjusted on the basis of the ratio of the number of working days in the month of completion to the average number of working days in the months January–September, inclusive.

Table 7.—Variance of work units completed January–September 1954

Organizational division (1)	Work unit (2)	Number of work units (3)	Square of minutes to complete each work unit (4)	Variance between the 9 monthly means (5)	Variance within the 9 months (6)	Variance ratio (7)
Intake	(01)	690	1, 943, 150	2, 926	1, 796	1.6
Home finding	(02)	1, 131	11, 965, 779	39, 018	7, 789	[a] 5.0
Foster care	(03)	37	147, 449, 764	3, 542, 860	2, 270, 936	1.6
	(04)	12	2, 519, 373	1, 128	246, 447	.004
	(C–05)	2, 608	638, 023, 419	332, 821	166, 054	2.0
	(C–06)	484	691, 905, 632	1, 114, 994	672, 137	1.7
	(C–07)	142	11, 136, 670	41, 702	53, 532	.8
	(C–08)	178	28, 949, 334	57, 683	121, 240	.5
	(09)	72	15, 868, 952	7, 525	150, 882	.049
Adoption	(11)	39	38, 189, 178	445, 436	779, 059	.6
	(12)	977	9, 169, 555	41, 686	5, 781	[a] 7.2
	(13)	143	166, 904, 717	754, 771	832, 925	.9
	(14)	54	8, 049, 791	87, 812	87, 973	1.0
	(C–15)	383	56, 322, 710	138, 908	83, 227	1.7
	(C–16)	230	66, 460, 861	90, 108	207, 646	.4
	(17)	63	307, 770, 584	4, 514, 709	2, 904, 310	1.6
	(C–18)	853	46, 233, 278	21, 036	38, 906	.5
	(19)	91	6, 836, 905	47, 569	65, 068	.7
Downstate	(21)	180	3, 709, 341	17, 941	14, 540	1.2
	(22)	122	920, 130	5, 898	3, 645	1.6
	(23)	38	3, 545, 133	60, 720	53, 206	1.1
	(24)	19	4, 756, 436	111, 964	253, 756	.4
	(C–25)	254	73, 121, 327	251, 092	208, 861	1.2
	C–26)	76	13, 273, 292	54, 773	102, 512	.5
	(C–27)	53	4, 321, 645	106, 071	44, 392	2.4
	(32)	305	4, 331, 403	25, 168	7, 989	[a] 3.2
	(33)	56	29, 036, 489	241, 190	284, 399	.8
	(34)	65	80, 273, 859	1, 542, 137	753, 121	2.0
	(C–35)	227	53, 622, 764	297, 869	117, 707	2.5
	(37)	37	42, 425, 267	336, 465	330, 233	1.0
	(C–38)	464	12, 947, 418	37, 786	16, 572	2.3
	(39)	126	4, 529, 765	33, 096	21, 882	1.5

[a] $p<.01$.

Table 8.—Standard errors of mean time for work units completed January–September 1954

[time in minutes]

Organizational division and category of work unit (1)	Number of work units (2)	Mean time (3)	Standard error [a] (4)	Relative standard error [b] (5)
Total agency	8, 225	229	±4	0.02
Intake:				
(01) Request screening	690	32	±2	.06
Home finding:				
(02) Foster home screening	1, 131	51	±3	.06
Foster care	3, 571	355	±8	.02
(03) Foster home study	37	1, 225	±263	.22
(04) Intake study	12	384	±75	.20
(C–05) Supervision in foster home	2, 608	280	±8	.03
(C–06) Supervision in institution	484	867	±37	.04
(C–07) Supervision in independent living arrangement	142	161	±19	.12
(C–08) Supervision in own home	178	212	±26	.12
(09) Special task	110	72	±36	.50
Adoption	2, 833	190	±8	.04
(11) Infant boarding home study	39	537	±135	.25
(12) Adoptive home screening	977	58	±2	.03
(13) Adoptive home study	143	587	±76	.13
(14) Intake study	54	251	±40	.16
(C–15) Supervision in infant boarding home and pre-adoption study of child	383	251	±15	.06
(C–16) Supervision in infant boarding home	230	294	±30	.10
(17) Pre-adoption placement process	63	1, 350	±222	.16
(C–18) Pre-adoption supervision	853	125	±7	.06
(19) Special task	91	111	±26	.23

See footnotes at end of table.

Table 8.—Standard errors of mean time for work units completed January–September 1954—Continued

[time in minutes]

Organizational division and category of work unit (1)	Number of work units (2)	Mean time (3)	Standard error [a] (4)	Relative standard error [b] (5)
Downstate	2,022	198	±7	.04
(21) Intake request screening	180	77	±9	.12
(22) Foster home screening	122	61	±6	.10
(23) Foster home study	38	200	±38	.19
(24) Foster care intake study	10	264	±100	.38
(C–25) Supervision in foster home	254	280	±29	.10
(C–26) Supervision in institution	76	280	±36	.13
(C–27) Supervision in own home	53	169	±32	.19
(32) Adoptive home screening	305	78	±5	.06
(33) Adoptive home study	56	495	±70	.04
(34) Adoption intake study	65	630	±114	.18
(C–35) Supervision in infant boarding home and pr-eadoption study of child	227	336	±23	.07
(37) Prea-doption placement	37	908	±95	.11
(C–38) Pre-adoption supervision	464	105	±6	.06
(39) Special task	126	116	±13	.11

[a] The standard error of the mean time of each category of work unit is computed by the formula $S_{\bar{x}} = \sqrt{\frac{Sx^2/N-1}{N}}$

where N = Total number of work units in the category.
Sx^2 = sum of squared deviations of individual items from the mean.

Standard errors of the mean time of categories of work units grouped into organizational division and by the total agency are weighted estimates computed by the formula

$$S'_{\bar{x}} = \sqrt{\frac{(S_{\bar{x}1}\cdot N_1)^2 + (S_{\bar{x}2}\cdot N_2)^2 + \ \dots \ + (S_{\bar{x}p}\cdot N_p)^2}{(N_1 + N_2 + \ \dots \ N_p)^2}}$$

when N = the number of work units in any category, subscripts 1, ... p, identify the different categories of work units.
Sx = the standard error of the mean in any category.

[b] The relative standard error is computed by dividing the standard error (column 4) by the mean (column 3).

VI. Estimating Unit Costs

Having found time measures of acceptable reliability for units of work that are deemed to be valid, mean times for the various categories can now be used directly against a schedule of work for a future time period in order to prepare a performance budget. But before doing this, procedures for using the work measurement data to estimate unit costs for the study period, January–September 1954, will be described. This material is presented here not only because of the interest attached to unit cost data per se, but also because it outlines some of the factors which go into the preparation of a schedule of work and hence assists in understanding the use of the work measurement data in the process of preparing a performance budget.

The key information obtained from the work measurement process is the mean time for completing various categories of work units. The mean time refers to direct casework time which can be identified with specific children or families. The cost of such time is, of course, only a portion of the total cost of producing the completed work unit. In addition, other expenses which must also be included in estimates of unit costs are those for caseworkers' time not charged to individual children, costs for maintenance of children, and for central services and general administration.

To obtain work unit costs an appropriate charge for all expenses must be made by categories of work units. Mean time for direct casework used to complete different categories of work units during the study period are now known. These time measures are easily converted to money terms by multiplying them by the cost of caseworkers' time. The simple multiplication of mean time for direct casework used to complete a given category of work unit by the cost of that time provides the essential conversion of the measurement of agency input, in dollars, to the measurement of agency output, in work units or service units.

With the cost of direct casework services known for each category of work unit, total cost for each category can be estimated by obtaining the ratio of the cost of direct casework service in the agency to total agency expenditures. This ratio can then be applied, category by category, to obtain unit costs for each type of work unit.

Before computing this ratio, the costs of maintaining children (boarding home payments, payments for medical care, clothing, etc.) are first subtracted. Maintenance of children constitutes a large portion of the total expenditures of the ICH&A—about 35 percent in 1954.

Maintenance costs can be related directly to continuous work units describing child-months of supervision in different types of care, and the average cost of maintenance can thus be obtained separately and later added into the other segments of unit costs.

For estimating total unit costs for the period studied from measurement of direct casework time, the essential relationship is therefore the ratio of direct casework cost to total cost, excluding expenditures for maintenance of children. Flexibility and accuracy in estimating, particularly for the purpose of obtaining unit costs for future time periods, may be obtained, however, by first obtaining the ratio of direct casework costs to total casework costs. This ratio might continue to be reliable, for example, even if changes in the agency outside of the casework operation disturbed the relationship in the more inclusive ratio of direct casework costs to total costs.

A further advantage of computing the two cost ratios, that is, direct casework costs to total casework costs and total casework costs to total costs, lies in the production of data on the factors of casework costs alone, which have considerable administrative interest.

The procedure for computing the two cost ratios for each of the three major organizational divisions of the study agency is shown in table 9—Computation of Cost Ratios, January–September 1954. This table also carries pertinent data used in later computations of the cost of categories of work units completed in the intake and home finding divisions. Line 1 shows the total amount paid to casework staff in the period January–September 1954. An adjustment is needed for the time of casework staff which went to work units which were not completed during the study period, either because the work was in process at the beginning of the study or because it was incomplete at the end of the study period. Line 2 shows the total minutes reported for direct casework, that is, casework time that was identified with a given child or family. Line 3 shows the total minutes used for all complete work units. Line 4 gives the factor for adjusting casework salaries to costs for complete work units. The factor of 97.5 percent for the foster care division, for example, means that 2.5 percent of total minutes reported for direct casework is subtracted before unit costs are computed because it was invested in incomplete work units. Total casework costs for complete work units are shown on line 5. Direct casework costs for complete work units (line 7) is obtained by multiplying the number of minutes reported for complete work units (line 3) by the cost of casework per minute (line 6). This rate is in turn derived by dividing payment to caseworkers (salary, payroll tax, etc.) by the total working time of casework staff, that is, total time for which workers were paid during the study period. This includes sick leave and vacations but not overtime. The ratio of total casework costs to direct costs (line 8) is then obtained by dividing items on line 5 by those on line 7.

The first step in obtaining the second ratio, total costs except maintenance to casework costs for complete work units (line 13), is to subtract payments for maintenance of children (line 10) from total expenditures for division (line 9) in order to get line 11, total division expenditures excluding maintenance. The items on line 11 are then multiplied by those on line 4 to obtain line 12—total division expenditures excluding maintenance, for complete work units. The ratio of total cost except maintenance to total casework cost for complete work units is then obtained by dividing items on line 12 by those on line 5.

The two cost ratios and data on the cost of casework per minute are then utilized in table 10—Estimated Cost of Work Units, January–September 1954. The ratios of total casework costs to direct casework costs are carried forward from line 8 of table 9 to column 5 of table 10. The ratios of total costs except maintenance to total casework costs for complete units are carried forward from line 13 of table 9 to column 7 of table 10. Likewise, the costs of casework per minute, line 6 of table 9, are posted to column 3 of table 10.

Mean time for direct casework (column 2) is posted from table 5, column 5. The computational process to arrive at unit cost except maintenance, column 8, is merely cross-multiplication of mean time (column 9) is obtained by dividing total payments for maintenance of children in each type of case by the number of work units reported for that category of case. This unit cost is then added to each appropriate category of work unit to get unit cost as shown in column 10.

Unit cost for each of the categories of work units completed in the intake and home finding divisions can, of course, be obtained directly by dividing total expenditures charged to each division by the number of work units completed (see footnote *a* of table 10). Columns 11 and 12 are not essential to the computation of unit costs, but provide additional information on the distribution of total expenditures by categories of work units.

Inasmuch as the work unit, the unit of count which has been dealt with thus far, represents a middle measure leading from the unit of count 'activities' to the unit of count representing the end product 'service,' in order to complete the cost analysis it is necessary to carry forward estimates of unit costs to the level of a complete 'service.' Costs expressed in work units are likely to be most useful for management control; costs expressed in terms of completed services are likely to have superior appeal in interpretation of program to persons outside the agency.

Complete services are made up of complexes of work units grouped together in ways determined by the nature of the services and the operating procedures and experiences of the agency. For example, work units describing the screening of requests for service and those describing intake studies together constitute the process of accepting a child for care. The number of requests screened to select one for study represents an operating ratio which has an important bearing on the cost of accepting the child for care. Likewise the length of time that a child receives service is an experience factor and an important cost determinant.

Table 11—Estimated Cost of Accepting a Child for Care, January–September 1954—describes the way that work unit costs are used, together with operating ratios and experience factors, to arrive at the cost of accepting a child for care. The unit costs for work units which enter into the process of accepting a child for care are carried over from column 10 of table 10 to column 2 of table 11, except for the unit cost of work unit 01 and 02 which are obtained from footnote *a* of table 10. The operating ratio of number of requests screened to one selected for study is shown in column 3. This ratio was obtained for foster care and for adoption services in Cook County and downstate by dividing the total number of requests screened during the study period by the number of requests referred for intake study.

To obtain the cost of accepting a child for Cook County foster care, for example, the unit cost of intake request screening (01) of $19.0150 is multiplied by the operating ratio of 8.7248, number of requests screened to select one for study (column 3), to obtain the screening cost of $165.9021 for selecting one child for study, column 4. The operating ratio of 2.4444, number of children studied to accept one for service, is entered in column 5. This figure is applied not only to the unit cost for intake study ($65.6869), but also to the cost of selecting one child for study ($165.9021). The reason for this is that the cost of the screening operation must include the screening for intake study of those children who are subsequently not selected for care, as well as for those who are. Another way of saying this is that it required 8.7248 × 2.4444 or 21.3234 screenings to accept one child. Multiplying $19.0150 by 21.3234 gives a figure close to $405.5311.

The cost of the 2.4444 intake studies that are made to accept each child is $160.5651, so that the total cost of accepting a child for foster care in Cook County is $566.0962. This includes, of course, the cost of service in the way of brief counsel, advice and referral, given on behalf of children who are not accepted for care by the ICH&A. Nevertheless, in terms of the end product, foster care, the cost of accepting a child for care is approximately $566.

The process of estimating costs of accepting a child for adoption in Cook County and for downstate foster care and adoption services is the same as that described for Cook County foster care. Inasmuch as screening for adoption and for foster home requests is a joint operation, both in Cook County and downstate, work unit 01 is used for both types of services in Cook County and work unit 21 for both types of services downstate.

For later use in expressing foster care service in terms of monthly cost, the average number of months of care was obtained for children for whom service was terminated during the study. The average number of months of foster care in Cook County was found to be 69 months and downstate, 17 months. These experience factors for Cook County and downstate foster care services are shown in column 7. By dividing each of these factors into the appropriate cost of accepting a child, the average acceptance cost per month of care is obtained in column 8. These amounts must be included in estimating the average cost of each month of child care.

The steps in the process of accepting a foster or infant boarding home for use by the agency are quite similar to those for accepting a child for care, so that the pattern of cost computation shown in table 11 is followed in table 12—Estimated Cost of Accepting a Home, January–September 1954. Here the cost of accepting a home, column 6, for foster care use in Cook County is shown to be $866.4054. However, the home once selected is used for one or more children over a period of months. For unit cost application, the expenditure for finding and approving the home must be 'amortized,' or spread over the period during which it is expected the home will be used. This experience factor is obtained by dividing the number of homes whose use was terminated during 1952–54, into the number of child-months of care provided by these homes. (Three years of experience were used because the relatively small number of homes closed during the course of the study did not provide a sufficiently reliable estimating base for this purpose.) In Cook County, for example, the average number of child-months of care for a foster home was 127 (column 7), and this number was divided into the cost of approving a home to arrive at the average cost of one month's use of a home as $6.8221. This amount, like the average accepting cost per month of care, must be included in estimating the average cost of each month of child care.

To arrive at the total cost of foster care per month, the costs of the various component parts of the service are combined in table 13—Estimated Cost of Foster Care Per Month, January–September 1954. The component parts of service must be appropriately grouped according to the type of foster care.[1] For example, the cost of service to children in foster homes includes the cost of accepting a home, while the other types of foster care would not include this cost factor. The method of estimating the monthly cost of miscellaneous work connected with the provision of foster care, here designated "special tasks" (work unit 09 and 39) is outlined in footnotes *a* and *b* of table 13. All other monthly costs shown in column 3 are obtained from tables 10, 11 or 12. It is important to note that the total monthly cost of $195.1638, for service to a child in an institution, includes only costs chargeable to the foster care division in Cook County. This unit cost, and similarly the cost of service to children in institutions downstate of $133.6368, *does not include the cost to the institution for maintenance and other services.* Hence special care should be taken in considering the costs given here for service to children in institutions.

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[1] "Service to children in own home" is not a type of foster care, but is included in this table because it is a part of the service provided by the foster care division of the study agency.

Having arrived at the monthly cost of different types of foster care, it is now possible to combine costs to arrive at the general average cost of a complete foster care service. The weighting procedure for arriving at the general average cost of a month's foster care is shown in table 14—Estimated Cost of Complete Foster Care Service, January–September 1954. The number of child-months of care by type of care is shown in column 2 and the same data in the form of a percentage distribution in column 3. The percentages in column 3 are used with the monthly cost of each type of care, column 4, to obtain a weighted cost, column 5, and then in an average cost of a month's foster care service, column 6. This average is multiplied by the average number of month's service to obtain the average cost of a complete foster care service, which turns out to be $8821.77 in Cook County and $2309.96 downstate.

The computation of the cost of a complete adoption service is shown in table 15. The component parts of the service are listed in column 1, and the categories of work units composing them are shown in column 2. The total cost of each category is shown in column 5. For some parts of the service, an intermediate computation involving the multiplication of monthly cost, column 3, by months of service, column 4, is involved. In this way the total cost of a complete adoption service in Cook County is estimated at $2126.68 and for downstate at $1427.59. Table 15 makes possible the demonstration of the important cost factors by component parts of service and by experience factor.

With cost estimates based on the 1954 work measurement data in hand, it is now possible to make some comparison of these estimates with the estimates previously discussed in chapter III. See table 16 for comparisons of unit cost estimate for 1954.

Estimating procedure number 1 is the one employed by the agency before the present study, namely the application of charges to operating divisions as shown by the agency's original expenditure statement, divided by the average number of children served per month. The agency's procedure was, in fact, to estimate only monthly and annual costs. The figures for complete service for Cook County foster care and adoption service as presented here (columns 5 and 7) are obtained through use of agency operating statistics and are presented for comparison with the results obtained through the use of the other estimated operating procedures employed in this study. Inasmuch as the agency statement of expenditures for the downstate programs was not analyzed by type of care, unit costs are not available for this portion of the agency program through the use of estimating procedure number 1. For the same reason, unit costs for downstate foster care and adoption are not available for estimating procedure number 2A or 2B.

Estimating procedure number 2A employs the same divisors as number 1, but uses an expenditure base derived from a somewhat more precise allocation of charges among programs than did the agency's original financial statement. Estimating procedure number 2B is applicable only to the Cook County adoption procedure; the expenditure base is the same as for number 2A, but the divisor is the number of adoptions consummated during the calendar year 1954. Included in this number are some adoptions which were worked upon before the beginning of the calendar year 1954. Conversely, this unit covers work performed in 1954 on adoptions which were not consummated until a subsequent year. Estimating procedure number 3 is like number 2A and 2B in that the recomputed expenditure base is employed. However, the divisors are the work units and service units devised for the work measurement procedure.

If estimating procedure number 3 is accepted as a standard for comparison, then the agency's original method of estimating foster care costs in Cook County represents an understatement of only 1.3 percent. The closeness of this estimate may be considered as due to the offsetting factors in the expenditure base and in the divisor, inasmuch as estimate number 2A, computed on a presumably more accurate financial base, results in a unit cost figure which is 5.6 percent under the number 3 estimate.

The comparison of the four estimates for Cook County adoption service shows a clear pattern of increasing costs. Again taking estimating procedure number 3 as the base, costs estimated by procedure number 1, as used by the agency in the first instance, are understated by 34.3 percent. Estimates number 2A and number 2B are successively closer to number 3. The successive changes made in the divisor or service count seem to be much more effective than the changes made in the recomputation of the expenditure base in moving toward the standard represented by estimate number 3. The difference between estimate number 2 and number 3 of 13.6 percent, in which the shift is made in the divisor from adoptions consummated during the year to performance units completed within the year, may illustrate the effect of insuring that fiscal data for a given period of time are related to service data for an identical period of time.

Inasmuch as unit costs for the downstate programs of foster care and adoption were made available for the first time through the work measurement study, comparisons with previous cost estimates for these programs cannot be made

VII. Using Work Measurement Data to Prepare a Performance Budget

The exposition in chapter VI of the method of computing unit costs for a base period serves also to outline the data needed and some of the procedures to be followed in using work measurement to arrive at a performance budget. For an agency with an established procedure for performance budgeting the performance budget, as the basic document, is prepared first and an objective budget is then set up as a supporting schedule. However, in the present application, to meet immediate administrative requirements the study agency proceeded in the latter part of 1956, as in previous years, to set up a budget on an objective basis, and the performance budget was prepared subsequently. This made the task of preparing the performance budget somewhat more simple than would ordinarily be the case. On the other hand, in the preparation of its objective budget, shown in table 17, the agency drew liberally upon the experience and data derived from the work measurement project.

This chapter describes the formal basis for the preparation of the performance budget in this agency situation. Estimates of future financial needs can now be obtained for this agency on a performance basis by applying data on mean casework time and related unit cost data to an anticipated schedule of work. Some of the factors which may affect agency determination of its anticipated schedule of work have been mentioned in chapter I. In 1956 the difficulty of obtaining an adequate supply of professionally qualified social workers was of overriding importance to the ICH&A, as it was to many other social agencies. Estimating the work schedule was, therefore, largely a matter of determining program priorities and establishing a work plan for the utilization of that volume of staff time which it was anticipated would be available. The performance budget then makes it possible to see unit costs and total costs for all categories of work units performed in each division of the agency, and thus to interpret and defend the work plan in the financial terms of the budget.

As illustrated in the preceding chapter, the unit costs for categories of work units are computed by cross-multiplying mean time for direct casework by cost of casework time and by ratios of the casework costs to total cost. The computation of the cost ratios for 1957 is shown in table 18.

Computation of cost ratios for coming year

Computations shown in table 18 are similar to those shown in table 9. The dollar data are drawn in this application from table 17 and from the same source data from which table 15 was prepared. For example, data for line 9, total expenditures for division, are taken from the last line of table 17. Data for line 10, maintenance of children, are obtained by combining data on the third and fourth lines of table 17. The figures for line 1, casework salaries, do not appear in table 17, but represent one of the items included in the first line of that table—'service costs.'

The only substantial difference between the computation of cost ratios in table 9, for a current period, and table 18, for a future period, is that the operation shown in line 10 of table 9 is omitted in table 18. This is done to avoid the necessity, in preparing future work schedules, of estimating the number of work units in each category which will not be entirely completed during the coming fiscal year. Instead, costs for categories of work units are estimated to include an appropriate cost factor or surcharge for incomplete work units.

Anticipated work schedule

The construction of the anticipated work schedule for the years' operation to be budgeted—1957—was a responsibility of the agency staff and not of the work measurement project. The three major kinds of considerations that appeared to influence staff thinking were:

1. Decisions as to aspects of the on-going program which should and could be modified.
2. Estimates of the volume of requests for service that would be made to the agency from the community.
3. The staffing schedule of the agency, including persons currently employed and the possibilities of recruiting additional persons.

With respect to Cook County operations, the agency arrived at two major policy decisions. The first was to increase the amount of casework time to be given to children in foster homes, and the second was to place children in adoptive homes after shorter periods of study and care in pre-adoptive boarding homes.

The agency staff had shown a growing interest in the therapeutic possibilities of specially selected and liberally subsidized foster homes for the treatment of disturbed children. With a tapering off in the demands on the agency for other types of foster home care, it was now possible to make an increasing commitment to the casework treatment aspects of foster care. In setting up the work schedule for the coming year the number of work units to be completed in all categories other than supervision in foster homes (C–05) were first estimated. This included the expected volume of requests for service for children, applications from prospective foster parents, and the studies of the children and boarding homes necessary to complete the level of intake indicated by the trend of the previous few years. The mean times to complete this volume of work, using the 1954 time study results, were then applied. The remaining anticipated staff time was then allowed for supervision of children in foster homes, work unit 05. Assuming the same number of work units as in the previous year of 1956, it was found that with the volume of staff time anticipated for 1957 it would be possible to give an average of 317 minutes for work unit C–05, an increase of 13 percent over the mean time reported for 1954.

The decision to place children for adoption at an earlier age arose from the growing conviction of the staff that this can result in improved service to children. It was believed desirable and possible to reduce the average time that children were in pre-adoptive boarding homes from 6 to 3 months. One effect of this would be to free staff time, which could then be used for placing a larger number of children for adoption. The amount of such time that might be freed and the increase in the number of children who could be placed could be estimated from the available data.

In setting up the work schedule for the adoption division, estimates were again made of the volume of work necessary to meet the need for screening requests from the community for adoption service for children, from prospective foster care parents, and from adoptive parent applicants. The second step was to estimate the number of children who could be accepted for placement, using the new experience factor of 3 rather than 6 months for the work unit, supervision in infant boarding homes and pre-adoption study of children (C–10). In making this estimate consideration was, of course, given to the increased number of children, boarding homes, and adoptive parents who would have to be approved to accommodate the additional children who would be placed in 1957.

The agency found that no major policy changes were necessary for the 1957 work schedule of the downstate operation. The number of work units to be completed in the coming year was, therefore, estimated to be the same as the number of work units completed in the previous year in each category.

Performance budget for 1957

The procedure for estimating the agency's financial needs for1957 on a performance basis is shown in table 19. The steps consist of multiplication of the mean time for completion of each category of work unit, by each of the two basic cost ratios, the addition of payments for maintenance of children, and division by the number of units of each category of work to be completed according to the agency's work schedule for the coming year

Table 9.—Computation of cost ratios, January–September 1954

Line No.	Item (1)	Intake division [a] (2)	Home finding division [a] (3)	Foster care division (4)	Adoption division (5)	Downstate division (6)
1	Casework salaries			$84, 323.78	$48, 777.27	$35, 018.61
2	Total minutes reported for direct casework	23, 124	91, 038	1, 298, 596	574, 167	408, 529
3	Minutes reported for direct casework on complete work units	21, 925	56, 408	1, 266, 049	539, 652	401, 109
4	Percent of total minutes for direct casework going into complete work units (3÷2)	94.8%	63.1%	97.5%	94.0%	98.2%
5	Total casework costs for complete work units (4×1)			$82, 215.69	$45, 856.63	$34, 388.28
6	Cost of casework per minute [b]			$0.0474	$0.0450	$0.0428
7	Direct casework costs for complete work units (3×6)			$60, 010.72	$24, 284.34	$17, 167.47
8	Ratio of total casework costs to direct casework costs (5÷7)			1.3700	1.8883	2.0031
9	Total expenditure for division	$13, 840.07	$16, 775.96	$402, 047.97	$128, 187.30	$117, 010.25
10	Maintenance of children [c]			$212, 804.84	$37, 849.11	$37, 876.82
11	Total division expenditures excluding maintenance (9−10)	$13, 840.07	$16, 755.96	$189, 243.13	$90, 338.19	$79, 133.43
12	Total division expenditures, excluding maintenance, for complete work units (4×11)	$13, 120.39	$10, 585.63	$184, 512.05	$84, 917.90	$77, 709.03
13	Ratio of total costs except maintenance to total casework costs for complete work units (12÷5)			2.2442	1.8518	2.2598

[a] Cost ratios are not computed here for the intake or home finding division, inasmuch as each of these divisions produces only one category of work unit. Unit costs for these categories can be obtained directly by dividing total division expenditures for complete work units by the number of work units completed.

[b] Obtained by dividing total payments for casework by the working time of casework staff. Working time represents the total time for which caseworkers are paid, including paid vacations and sick leave. It does not include unpaid overtime.

[c] Estimated by distributing 1954 expenditures for maintenance items among programs on the basis of the percentage distribution for 1956, the first year for which this type of distribution is available for the agency. "Maintenance" in this and subsequent tables includes payments on behalf of individual children for board, clothing, medical care, scholarships, allowances, and recreation.

Table 10.—Estimated cost of work units, January–September 1954 [a]

Category of work unit (1)	Mean time for direct casework (2)	Cost of direct casework per minute (3)	Unit cost of direct casework (4)	Ratio of total to direct casework costs (5)	Unit cost of casework (6)	Ratio of total costs except maintenance to casework costs (7)	Unit cost except maintenance (8)	Unit cost of maintenance (9)	Unit cost (10)	Number of units (11)	Total cost for category of complete work units (12)
Foster care			(2)×(3)		(4)×(5)		(6)×(7)		(8)+(9)		(10)×(11)
Total [b]	...	...	...	...	...	...	...	...	...	...	$397, 641.63
(03)	1, 225	$0.0474	$58.0650	1.3700	$79.5491	2.2442	$178.5241	...	$178.5241	37	6, 605.39
(04)	384	...	18.2016	...	24.9362	...	55.9618	...	55.9618	12	671.54
(C–05)	280	...	13.2720	...	18.1826	...	40.8054	$70.36	111.1654	2, 608	289, 919.36
(C–06) [c]	867	...	41.0958	...	56.3012	...	126.3512	60.27	186.6212	484	90, 324.66
(C–07)	161	...	7.6314	...	10.4550	...	23.4631	...	23.4631	142	3, 331.76
(C–08)	212	...	10.0488	...	13.7669	...	30.8957	.76	31.6557	178	5, 634.71
(09)	72	...	3.4128	...	4.6755	...	10.4928	...	10.4928	110	1, 154.21
Adoption											
Total [b]	...	...	...	...	...	...	...	...	...	...	122, 919.88
(11)	537	0.0450	24.1650	1.8883	45.6308	1.8518	84.4991	...	84.4991	39	3, 295.46
(12)	58	...	2.6100	...	4.9285	...	9.1266	...	9.1266	977	8, 916.69
(13)	587	...	26.4150	...	49.8794	...	92.3667	...	92.3667	143	13, 208.44
(14)	251	...	11.2950	...	21.3283	...	39.4957	...	39.4957	54	2, 132.77
(C–15)	251	...	11.2950	...	21.3283	...	39.4957	56.57	96.0657	383	36, 793.16
(C–16)	294	...	13.2300	...	24.9822	...	46.2620	70.36	116.6220	230	26, 823.06
(17)	1, 350	...	60.7500	...	114.7142	...	212.4278	...	212.4278	63	13, 382.95
(C–18)	125	...	5.6250	...	10.6217	...	19.6693	...	19.6693	853	16, 777.91
(19)	111	...	4.9950	...	9.4321	...	17.4664	...	17.4664	91	1, 589.44

Downstate											
Total [b]											115, 554. 23
(21)	77	0. 0428	3. 2956	2. 0031	6. 6014	2. 2598	14. 9178		14. 9178	180	2, 685. 20
(22)	61		2. 6108		5. 2297		11. 8181		11. 8181	122	1, 441. 81
(23)	200		8. 5600		17. 1465		38. 7477		38. 7477	38	1, 472. 41
(24)	264		11. 2992		22. 6334		51. 1470		51. 1470	19	971. 79
(C–25)	280		11. 9840		24. 0052		54. 2470	81. 99	136. 2370	254	34, 604. 20
(C–26) [c]	280		11. 9840		24. 0052		54. 2470	70. 00	124. 2470	76	9, 442. 77
(C–27)	169		7. 2332		14. 4888		32. 7418		32. 7418	53	1, 735. 32
(32)	78		3. 3384		6. 6871		15. 1115		15. 1115	305	4, 609. 01
(33)	495		21. 1860		42. 4377		95. 9007		95. 9007	56	5, 370. 44
(34)	630		26. 9640		54. 0116		122. 0554		122. 0554	65	7, 933. 60
(C–35)	336		14. 3808		28. 8062		65. 0963	51. 68	116. 7763	227	26, 508. 22
(37)	908		38. 8624		77. 8453		175. 9148		175. 9148	37	6, 508. 85
(C–38)	105		4. 4940		9. 0019		20. 3425		20. 3425	464	9, 438. 92
(39)	116		4. 9648		9. 9450		22. 4737		22. 4737	126	2, 831. 69

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[a] The cost of work unit 01 is estimated by dividing the total expenditures of the intake division for complete work units ($13,120.39) by the number of work units completed (690) for a unit cost of $19.0150; the estimate for work unit 02 is $10,585.63 divided by 1131, or $9.3595.

[b] Total expenditures for each division represent total expenditures for complete work unit, including maintenance and, with some minor differences (less than 0.02 percent) resulting from the rounding out of decimals, equal the sums of lines 10 and 12, table 9.

[c] Does not include costs borne by the institutions.

The agency's formulation of its work schedule is shown in column 11 of table 19 as "number of work units to be completed." The data for column 2, 'mean time for direct casework,' is obtained from the 1954 work measurement study (see table 5). The cost of casework per minute, column 3, is obtained from table 18, line 6. The cost of direct casework, column 4, is the product of column 2 multiplied by column 3. The ratio of total cost except maintenance of children to casework cost, column 7, is from table 18, line 12. Data on cost of maintenance of children is based on the agency's 1956 experience. Column 8 is the product of column 6 times column 7. The total unit cost shown in column 10 is the sum of columns 8 and 9. The number of work units to be completed, column 11, can then be multiplied by the total unit cost to obtain the total cost for all categories of work units to be completed, column 12. The different categories of work units are summarized by operating division and for the agency as a whole in column 13, "total budget."

The totals shown in column 13 differ slightly from those shown in the agency's budget by object, table 17; for example, $1,038,179 as compared with $1,038,188 for the agency as a whole. This results from the rounding out of figures in the computation made in table 19. When the performance budget is constructed first, it becomes the base to which the objective budget is keyed.

The performance budget presents interrelated data, not only for the agency as a whole, but for each of the operating divisions, and in a form which makes it possible to place fiscal responsibility and control with the heads of the organizational divisions and to interpret, at any appropriate level, the relation of the agency's request for funds to the anticipated use of such funds in producing child welfare service.

Table 11.—Estimated cost of accepting a child for care, January–September 1954

Type of care and category of work unit (1)	Work unit cost (2)	Number of requests screened to select one for study (3)	Cost of selecting one child for study (4)	Number of children studied to accept one [a] (5)	Cost of accepting child (6)	Average number of months of care (7)	Average acceptance cost per month of care (8)
Cook County							
Foster care:			(2)×(3)		(4)×(5)		(6)÷(7)
Intake request screening (01)	$19.0150	8.7248	$165.9021	2.4444	$405.5311		
Intake study (04)	65.6869			2.4444	160.5651		
Total					566.0962	69	$8.2043
Adoption:							
Intake request screening (01)	19.0150	8.7248	165.9021	1.0610	176.0221		
Intake study (14)	41.8183			1.0610	44.3692		
Total					220.3913		
Downstate							
Foster care:							
Intake request screening (21)	15.4188	3.4900	53.8116	1.1429	61.5013		
Intake study (24)	52.8645			1.1429	60.4188		
Total					121.9201	17	7.1718
Adoption:							
Intake request screening (21)	15.4188	3.4900	53.8116	1.1515	61.9641		
Intake study (34)	126.1540			1.1515	145.2663		
Total					207.2304		

[a] The cost of the screening operation, the first step in accepting a child, includes the selection for study of those children who are subsequently not accepted as well as those who are. For this reason the cost of selecting one child for study as shown in column 4 is multiplied by the number of children studied to accept one, as shown in column 5. In the second line of the cost computation for acceptance for each type of care, the ratio of children studied to children accepted is again used against the work unit cost of an intake study to arrive at the average cost of the second step in accepting a child.

Table 12.—Estimated cost of accepting a home, January–September 1954

Type of home and category of work unit	Work unit cost	Number of homes screened to select one for study	Cost of selecting one home for study	Number of homes studied to approve one [a]	Cost of approving home	Estimated average number of months of use	Average cost of one month's use of home
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cook County							
Foster home:			(2)×(3)		(4)×(5)		(6)÷(7)
Foster home screening (02)	$9.3595	25.2195	$236.0419	1.9444	$458.9599		
Foster home study (03)	209.5482			1.9444	407.4455		
Total					866.4054	127	$6.8221
Infant boarding home:							
Foster home screening (02)	9.3595	25.2195	236.0419	2.2381	528.2854		
Infant boarding home study (11)	89.4677			2.2381	200.2377		
Total					728.5231	32	22.7663
Adoptive:							
Adoptive home screening (12)	9.6634	6.4659	62.4826	3.6618	228.7988		
Adoptive home study (13)	97.7980			3.6618	358.1167		
Total					586.9155		

Downstate							
Foster and infant boarding home:							
Foster home screening (22)	12.2148	6.1579	75.2175	1.3571	102.0777		
Foster home study (23)	40.0489			1.3571	54.3504		
Total					156.4281	15	10.4285
Adoptive home:							
Adoptive home screening (32)	15.6190	9.2838	145.0037	1.2759	185.0102		
Adoptive home study (33)	99.1211			1.2759	126.4686		
Total					311.4788		

[a] The cost of the screening operation, the first step in accepting a home, includes the selection for study of those homes which are subsequently not accepted as well as those which are. For this reason the cost of selecting one home for study as shown in column 4 is multiplied by the number of homes studied to accept one, as shown in column 5. In the second line of the cost computation for each type of home the ratio of homes studied to homes accepted is again used against the work unit cost of a foster home study to arrive at the average cost of the second step in accepting a home.

Table 13.—Estimated cost of foster care per month, January–September 1954

Type of foster care and constituent parts [a] (1)	Work units (2)	Monthly cost (3)
Cook County		
Service to children in foster home, Total		$126.5301
Accepting child	(01)–(04)	8.2043
Accepting foster home	(02)–(03)	6.8221
Supervision and board	(C–05)	111.1654
Special tasks	(09) [b]	0.3383
Service to children in institution,[c] Total		195.1638
Accepting child	(01)–(04)	8.2043
Supervision	(C–06)	186.6212
Special tasks	(09) [b]	0.3383
Service to children in independent living arrangement, Total		32.0057
Accepting child	(01)–(04)	8.2043
Supervision and board	(C–07)	23.4631
Special tasks	(09) [b]	0.3383
Service to children in own home, Total		40.1983
Accepting child	(01)–(04)	8.2043
Supervision	(C–08)	31.6557
Special tasks	(09) [b]	0.3383
Downstate		
Service to children in foster home, Total		$156.0553
Accepting child	(21)–(24)	7.1718
Accepting foster home	(22)–(23)	10.4285
Supervision and board	(C–25)	136.2370
Special tasks	(39) [d]	2.2180
Service to children in institution,[c] Total		133.6368
Accepting foster child	(21)–(24)	7.1718
Supervision	(C–26)	124.2470
Special tasks	(39) [d]	2.2180
Service to children in own home, Total		42.1316
Accepting child	(21)–(24)	7.1718
Supervision	(C–27)	32.7418
Special tasks	(39) [d]	2.2180

[a] Service to children in own home is not a type of foster care but is included in the table because it is a part of the service provided by the foster care division of the study agency.

[b] Estimated as follows: Number of units completed in each category of continuing work units (table 5, col. 3).

(C-05)	2608
(C-06)	484
(C-07)	142
(C-08)	178
Total continuing work units	3412

Total cost of category of work unit (09) $1,154.21 (table 10, col. 12.)
Average monthly cost of work unit (09) $0.3383.

[c] Includes only costs of service provided by foster care division in Cook County, or by downstate division; does not include cost of service provided by the institution.

[d] Estimated as follows: Total expenditures for work unit (39) special tasks were divided between foster care services and adoption services on the basis of time invested in those completed work units which relate to only one of the services.

Foster care		*Adoptions*	
Category of work unit	*Minutes*	*Work unit*	*Minutes*
(24)	5.014	(32)	23.853
(C-25)	71.170	(33)	27.739
(C-26)	21.295	(34)	40.291
(C-27)	8.975	(C-35)	76.201
		(37)	33.586
	106.454	(C-38)	48.669
			250.339

The total of the time for completing work units relating exclusively to one of the two services was 356,793 minutes, of which 106,454 or 30 percent was for foster care service. Consequently 30 percent of the $2,831.69 expended for work unit (39), or $849.51, was charged to foster care. The $849.51 was then divided by the number of months of foster care provided, (C-25), 254; (C-26) 76; and (C-27) 57; or 383, to arrive at a monthly cost for work unit (39) of $2.2180.

Table 14.—Estimated cost of complete foster care service, January–September 1954

Type of service (1)	Number of child-months care provided [a] (2)	Percentage distribution (3)	Monthly cost (4)	Weighted cost (5)	Average cost of a month's foster care service (6)	Average number of months of service (7)	Average cost of complete foster care service (8)
Cook County				(3)×(4)	(5)÷100		
Total	3, 412	100.00		$12, 785.1738	$128.8191	69	$8, 888.52
In foster home	2, 608	76.44	$126.5301	9, 671.9608			
In institution	484	14.18	195.1638	2, 767.4203			
In independent living arrangement	142	4.16	32.0057	133.1437			
In own home	178	5.22	40.1983	212.6490			
Downstate							
Total	383	100.00		13, 588.0109	135, 8801	17	2, 309.96
In foster home	254	66.32	156.0553	10, 349.5875			
In institution	76	19.84	133.8368	2, 655.3221			
In own home	53	13.84	42.1316	583.1013			

[a] Represents number of child-months of care provided in study period, June–September 1954; and is the same as the number of continuous work units completed for each type of service.

Table 15.—Estimated cost of complete adoption service, January–September 1954

Component parts of service (1)	Work unit (2)	Monthly cost of component parts of service (3)	Number of months for components (4)	Total cost (5)
Cook County				
Total				$2, 126. 6773
Accepting infant boarding home	(02)–(11)	$22. 7663	7. 0	159. 3641
Accepting child	(01)–(14)			220. 3913
Supervision and study in infant boarding home	(C–15)	96. 0657	7. 0	672. 2460
Accepting adoptive home	(12)–(13)			586. 9155
Pre-adoption placement process	(17)			212. 4278
Pre-adoption supervision	(C–18)	19. 6693	12. 6	247. 8332
Special tasks (including post-adoption service)	(19) [a]			28. 4994
Downstate				
Total				1, 427. 5863
Accepting infant boarding home	(22)–(23)	10. 4285	3. 6	37. 5426
Accepting child	(21)–(34)			207. 2304
Supervision and study in infant boarding home	(C–35)	116. 7763	3. 6	420. 3947
Accepting adoptive home	(32)–(33)			311. 4788
Pre-adoption placement process	(37)			175. 9148
Pre-adoption supervision	(C–38)	20. 3425	11. 8	240. 0415
Special tasks (including post-adoption service)	(39) [a]			34. 9835

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[a] The unit cost of *special tasks* was estimated by first obtaining the ratio of the cost of all other categories of *work units* to the cost of this category. The same ratio was then established for the unit cost of all the constituent parts of the service to the costs of *special tasks*.

Table 16.—Comparison of unit cost estimates for 1954

Estimating procedure			Cook County				Downstate		
			Foster care		Adoption		Foster care		Adoption
No. (1)	Expenditure base (2)	Divisor (3)	Year's care (4)	Complete service (5)	Year's care (6)	Complete service (7)	Year's care (8)	Complete service (9)	Complete service (10)
1	Agency's original expenditure statement (table 1).	Monthly average of children served.	$1, 512	[a] $8, 704	$800	[b] $1, 397	[c] N.a	[c] N.a	[c] N.a
2A	Recomputation of expenditures (table 2).	Monthly average of children served.	1, 452	[a] 8, 331	900	1, 470	[c] N.a	[c] N.a	[c] N.a
2B	Recomputation of expenditures (table 2).	Adoptions consummated during year.	....	....	....	1, 838	....	....	[c] N.a
3	Recomputation of expenditures (table 2).	Performance units [d]	1, 536	[a] 8, 821	....	2, 127	1, 631	2, 309. 96	$1, 428

[a] The cost of complete service for Cook County foster care is obtained by multiplying the cost of a year's care by 5.75 years, the average length of care.

[b] The cost of complete service for Cook County adoption is obtained by multiplying the cost of a year's care by $\frac{19.5}{12}$. The 19.5 months represent average length of adoptive care, 7.0 in the infant boarding home, plus 12.5 months in the pre-adoptive home.

[c] Data not available. Downstate expenditures for 1954 were not broken down by type of service before the work measurement study.

[d] Work units and service units from January–September 1954 work measurement study.

Table 17.—Illinois Children's Home and Aid Society, summary of direct costs and estimated allocation of indirect costs—Proposed budget for 1957

	Operating costs					Total for downstate	Operating costs			Total for Cook County	Agency-wide total
	Waukegan	Rockford	Champaign	Alton	East St. Louis		Foster care	Children's home [a]	Adoption		
Direct Costs											
Service costs	$12,824	$17,308	$15,938	$16,917	$18,241	$81,228	$159,560	$111,399	$86,049	$357,008	$438,236
Downstate administration	3,521	2,979	2,528	1,987	1,986	13,001	...	...	...	...	13,001
Maintenance	7,319	8,646	15,207	11,547	12,459	55,178	236,087	17,850	19,800	273,737	328,915
Maintenance downstate,[b] children in foster care division	...	...	...	...	...	...	11,906	...	...	11,906	11,906
Total direct costs	23,664	28,933	33,673	30,451	32,686	149,407	407,553	129,249	105,849	642,651	792,058
Indirect Costs											
Home finding	...	...	...	...	...	...	5,245	...	5,246	10,491	10,491
Intake	...	...	...	...	...	...	5,071	...	5,070	10,141	10,141
Clinic	445	...	...	...	...	445	6,036	3,564	8,218	17,818	18,263
Leased cars	...	...	...	...	...	...	3,528	294	2,578	6,400	6,400
Administration	9,512	8,048	6,828	5,365	5,365	35,118	82,613	4,605	35,406	122,624	157,742
Public relations	3,030	2,564	2,176	1,709	1,710	11,189	18,967	6,541	6,396	31,904	43,093
Casework service at children's home	...	...	...	...	...	...	[c] —28,449	28,449	...	...	...
Total indirect costs	12,987	10,612	9,004	7,074	7,075	46,752	93,011	43,453	62,914	199,378	246,130
Total operating cost	36,651	39,545	42,677	37,525	39,761	196,159	500,564	172,702	168,763	842,029	1,038,188

See footnotes at end of table.

Table 17.—Illinois Children's Home and Aid Society, summary of direct costs and estimated allocation of indirect costs—Proposed budget for 1957—Continued

Distribution of costs to division	Downstate	Foster care	Children's home	Adoption	Intake	Home finding	Total agency
Total operating cost	$196, 159	$500, 564	$172, 702	$168, 763			
Charge for intake		−5, 071		−5, 070	$10, 141		
Charge for foster home finding		−5, 245		−5, 246		$10, 491	
Charge for casework service at children's home		28, 449	−28, 449				
Total expenditures for divisions	196, 159	518, 697	144, 253	158, 447	10, 141	10, 491	$1, 038, 188

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[a] Formerly known as the Evanston Receiving Home.

[b] Represents maintenance of children provided service by the Cook County foster care division in a home in downstate Illinois.

[c] Represents transfer of charges for casework service given by foster care division to Children's Home.

Table 18.—Computations of cost ratios, 1957

Line No.	Item	Intake division	Home finding division	Foster care division	Adoption division	Downstate division
	(1)	(2)	(3)	(4)	(5)	(6)
1	Casework salries			$121, 908	$73, 452	$58, 788
2	Total minutes for direct casework [a]	20, 253	129, 319	1, 475, 440	482, 127	558, 429
3	Minutes for complete work units [b]	19, 200	81, 600	1, 438, 554	453, 199	548, 377
4	Percentage of total minutes on direct casework going to complete work units (3÷2)	94. 8%	63. 1%	97. 5%	94. 0%	98. 2%
5	Casework costs for complete work units (4×1)			$118, 860	$69, 045	$57, 730
6	Cost of casework per minute			0. 0619	0. 0537	0. 0537
7	Salaries for direct casework for complete work units (3×6)			$89, 046	$24, 337	$29, 448
8	Ratio of total casework costs to direct casework costs for complete work units (5÷7)			1. 3348	2. 8370	1. 9604
9	Total expenditures for division	$10, 141	$10, 491	$518, 697	$158, 447	$196, 159
10	Maintenance of children			$247, 993	$19, 800	$55, 178
11	Total division expenditures excluding maintenance (9–10)	$10, 141	$10, 491	$270, 704	$138, 647	$140, 981
12	Ratio of total expenditures for division except maintenance (11÷5)			2. 2775	2. 0081	2. 4421

[a] Estimated by applying 1954 experience on proportion of total working time on direct casework to 1957 staffing schedule.

[b] Estimated on basis of 1954 experience for percentage of time for direct casework going into complete work units (same as line 4).

Table 19.—Performance budget for 1957

Category of work units (1)	Mean time for direct casework (minutes) (2)	Cost of direct casework per minute (3)	Cost of direct casework per unit (4)	Ratio of total casework costs to direct casework costs (5)	Cost of casework per unit (6)	Ratio of total cost except maintenance to casework cost (7)	Total cost except maintenance per unit (8)	Cost of maintenance of children per unit (9)	Total cost per unit [a] (10)	Number of work units to be completed (11)	Total cost for each category of work (12)	Total budget (13)
Total agency												$1,038,179
Intake, 01									$16.9017	600	$10,141.00	10,141
Home finding, 02									6.5569	1,600	10,491.00	10,491
Foster care, total		$0.0619		1.3348		2.2775					518,689.14	518,689
03	1225		$75.8275		$101.2145		$230.5160		230.5160	6	1,383.10	
04	384		23.7696		31.7277		72.2598		72.2598	26	1,878.75	
C–05	317		19.6223		26.1918		59.6518	$87.33	146.9818	2220	326,299.60	
C–06	867		53.6673		71.6351		163.1489	74.80	237.9489	720	171,323.21	
C–07	161		9.9659		13.3025		30.2964	.94	31.2364	282	8,808.66	
C–08	212		13.1228		17.5163		39.8934		39.8934	222	8,856.33	
09	72		4.4568		5.9489		135.4886		135.4886	10	135.49	
Adoption, total		0.0537		2.8370		2.0081					158,445.53	158,446
11	537		28.8369		81.8103		164.2833		164.2833	16	2,628.53	
12	58		3.1146		8.8361		17.7438		17.7438	960	17,034.05	
13	587		31.5219		89.4276		179.5796		179.5796	84	15,084.69	
14	251		13.4787		38.2391		76.7879		76.7879	77	5,912.67	
C–15	251		13.4787		38.2391		76.7879	70.21	146.9979	282	41,453.41	
17	1350		72.4950		205.6683		413.0025		413.0025	84	34,692.21	
C–18	125		6.7125		19.0434		38.2411		38.2411	1080	41,300.39	
19	111		5.9607		16.9105		33.9580		33.9580	10	339.58	

Downstate, total	....	0.0537	....	1.9604	....	244.21	....	....	....	....	196, 159.18	196, 159
21	77	....	4.1349	....	8.1061	....	19.7959	....	19.7959	150	2, 969.39	....
22	61	....	3.2757	....	6.4217	....	15.6824	....	15.6824	115	1, 803.48	....
23	200	....	10.7400	....	21.0547	....	51.4177	....	51.4177	26	1, 336.86	....
24	264	....	14.1768	....	27.7922	....	67.8713	....	67.8713	3	203.61	....
C–25	280	....	15.0360	....	29.4766	....	71.9848	101.76	173.7448	228	39, 613.81	....
C–26	280	....	15.0360	....	29.4766	....	71.9848	86.88	158.8648	120	19, 063.78	....
C–27	169	....	9.0753	....	17.7912	....	43.4479	....	43.4479	120	5, 213.75	....
32	78	....	4.1886	....	8.2113	....	20.0528	....	20.0528	550	11, 029.04	....
33	495	....	26.5815	....	52.1104	....	127.2588	....	127.2588	88	11, 198.77	....
34	630	....	33.8310	....	66.3223	....	161.9657	....	161.9657	76	12, 309.39	....
C–35	336	....	18.0432	....	35.3719	....	86.3817	64.14	150.5217	336	50, 575.29	....
37	908	....	48.7596	....	95.5883	....	233.4362	....	233.4362	63	14, 706.48	....
C–38	105	....	5.6385	....	11.0537	....	26.9942	....	26.9942	924	24, 942.64	....
39	116	....	6.2292	....	12.2117	....	29.8222	....	29.8222	40	1, 192.89	....
Children's home	....	....	....	....	....	....	....	....	....	....	1, 442.53	144, 253

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[a] These costs include all expenditures for this category of work units, including an expected proportion of expenditures for incomplete work units. The unit costs for complete work units will be less than shown in columns 8 and 10 by the cost of the incomplete work units.

VIII. Further Problems and Some Possibilities

Some of the problems encountered in the collection of work measurement data have been mentioned in the course of this report, particularly in chapter IV. Other problems which should be mentioned, because they point to needed improvements in the procedure, relate to the identification and control of work unit counts, and to the reporting of time for case recording.

The two major tasks involved in the collection of the time study data were to control the counts of work units and to measure the amount of time devoted to them. In this application, caseworkers were asked to perform both tasks simultaneously, by reporting on the daily case work unit record not only the amount of time given to an activity but also whether the performance of that activity completed the work unit to which it was related. Work unit counts were obtained from the case work unit record and from control lists showing work units in process at the beginning and at the end of the study period.

The work unit counts obtained in this way were subsequently compared with those derived from the agency's monthly statistical report after the reporting system, through some minor amplifications, had been brought into line with the schedule of work units. This sequence of operations was followed in order to avoid the revision of the agency's statistical reporting system before the reliability of the work units selected had been tested. However, the procedure as followed entailed a large amount of detailed clerical work in checking against control lists and other agency records, and in reconciling the work unit counts as reported on the daily case work unit report with those collected through the agency's established monthly statistical reporting system. The cross-checks showed that most of the discrepancies were caused by workers failing to report the termination of units when they entered their time for an activity on the daily case work unit record. The simultaneous reporting of time and status of work units apparently imposed too heavy a burden of curernt, daily reporting on the caseworker.

This experience suggests the desirability of an agency first establishing and operating a statistical system on a work unit basis for a few months before attempting to add the requirement of time study reporting so that the burden of determining termination of work units can be carried through the regular monthly reporting procedures. As has been indicated, while time reporting can be limited to a given study period, for continuing utilization of a work measurement procedure the recording of the volume of work units completed must be maintained continuously.

Regardless of the method of collecting data on work unit counts,the data must originate with the staff person performing the work. Work units were defined by actions describing their initiation and termination. However, the provision of casework service involves interaction between the caseworker and the person being served, and it is sometimes difficult for the worker to know when a given task has been completed. A worker may believe that with the completion of a given activity he has completed a job, but the client may later make a request involving further activity by a worker in connection with the work unit. The time involved in meeting the request is properly chargeable to the work unit previously considered completed. For work units whose termination may, in fact, be marked by an action initiated by either the caseworker or another person, the practice was followed in this project of defining the termination of a work unit in terms of the last activity before the initiation of the next work unit in the process. Although this maneuver results in definitions that may appear to be circular or redundant, it does provide for categories which are mutually exclusive.

However, the problem of a definite termination remains in those instances where a work unit is the only one involved in a service, or the last one in a series comprising a service. For example, the worker may terminate a foster home screening with the rejection of the application. If the applicant makes further inquiry or reapplies after one week, one month, or three months, should the time spent on further work be charged to the original work unit? After reviewing a few months' experience, the convention was adopted of tabulating all time spent in such situations as one unit unless more than one full calendar month elapsed between requests, or, in any event, if the later request was handled by another worker.

A somewhat related and particularly difficult problem was the reporting of time spent by workers on case recording. Caseworkers were instructed to include time spent on recording with their time reported for the completion of that work unit. This presented no problem for prompt recording of work that related to only one unit. However, from inspection of the data as reported, and from discussion with the staff, it became clear that for summary reporting covering a number of work units and for case recording performed after service had advanced to another stage than that being recorded, case recording time was not always fully charged to the appropriate work units.

The net effect of incorrect reporting of case recording in this project cannot be determined. However, in order for this to affect the cost distributions importantly, it would be necessary to assume a systematic bias among categories of work units, and there was no evidence of this. The accurate reporting of case recording would appear to be a difficult problem for any agency which does not record currently after the completion of each task. This is an area of work measurement requiring further research and development.

Further study is also needed with respect to reporting the time of casework supervisors, including directors of divisions and assistant supervisors. In this project, persons in these positions were instructed to use the same daily case work unit record as caseworkers. However, a much larger proportion of the time of supervisory personnel than of the caseworkers' time is spent on work that cannot readily be identified with individual children and families, so that the percentage of their total working time reported by supervisory personnel fell far below the 73 percent reported by caseworkers. The total amount of time reported by supervisors was so small and so nearly approximated the distribution of that of caseworkers that the omission of their time from the measure of mean time for categories of work units would not have materially affected the cost analysis. In agencies having approximately the same ratio of supervisory personnel to workers as the ICH&A (see table 1), the work measurement procedure might be simplified without appreciably affecting the precision of estimates by omitting supervisory personnel from the work measurement process. Expenditures for supervisory time would then be treated as "other than casework or maintenance costs" and distributed to work units on the basis of the distribution of casework time. Such gains in economy of collection of data must be weighed against those morale factors which may accrue from having all members of staff participating in a common enterprise. In this project, all social work staff, including supervisors and directors of divisions, and most other professional and clerical staff, kept some form of time record.

Cooperation of staff was encouraged not only by their involvement in the planning of the study and participation in making appropriate content decisions, but also by making reports of progress to them at two- or three-month intervals. The data given in these reports related to percentage of working time reported (to encourage full reporting) and distribution of working time by activity, a subject in which staff showed considerable interest. In order to avoid influencing either time invested or the reporting of such time by work units, data on mean time by categories of work units or on costs were not made available during the course of the study.

On the basis of the brief pilot study (mentioned in chapter IV under "The application of time measurement to work units"), it had been estimated that caseworkers might be expected to identify between 70 and 80 percent of their total work time with service to individuals, children or families. The staff achieved a reporting coverage of 73 percent for the nine month period. The monthly percentage rose for the first three months of the study—January through March—and fell after the fourth month when it was announced that the study was not to be terminated then but would be continued through September.

It was expected that extending the period of the time study from four to nine months would show something about the effect of seasonal factors on work units. The question of seasonal influence was not whether the number or the distribution of work units completed would vary, but rather whether the average time used to complete work units in the various categories would vary significantly. The implicit assumption at the beginning of the study was that if valid work units could be identified and if the mean time for their completion proved to be reliable, the factor of seasonal change might be disregarded.

Although measurement of seasonal fluctuation requires time series covering a number of years, it was hoped that by running the time study through the summer months and September, some light might be thrown on the validity of the assumption of non-seasonality. The data obtained are not conclusive either in support of, or in opposition to, this assumption.

Most discrete work units are completed over a period of months and frequently extend from one season to another, so that it is not possible to consider seasonal variations in mean time for their completion. Moreover, as pointed out in the discussion of the simulated estimating situation (chapter V) a tendency which could mask seasonal effects is inherent in the method of counting these units.

Those categories of discrete units which are usually completed within a short period of time, namely, the "screening" type of work unit, all of which have mean times of less than 90 minutes, exhibit a mixed pattern with respect to summer seasonal effect. Three work units, namely, Cook County request screening (01), downstate request screening (21), and downstate adoptive home screening (32) show a decline in mean time during July and August. Three work units show no summer drop, namely Cook County foster home screening (02), Cook County adoption home screening (12), and downstate foster home screening (22).

In commenting upon the tendencies for mean times of continuous work units to decline, it was pointed out that one of the factors which might be related to this was reporting attrition. The extent to which the summer drop in the mean times of continuous work units represents a real seasonal effect, or the extent to which it is an artifact of the reporting process in this project, cannot be conclusively determined from the data at hand.

A clear gain in the extension of the study period from four to nine months was the increase in the reliability of the data on work unit means. A comparison is given in table 20 of the relative standard errors for the various categories of work units, as shown in table 8 of this report on the nine months experience, and in the report of the first four months of the study.[1]

For every category for which comparable relative standard errors are available, those for the nine months period are smaller than those for the shorter study period. As the size of the sample increased, the reliability of the data increased. The improvement in reliability is particularly marked for those categories of discrete units in which very few units were completed in the first four months of the study. As was suggested in the four months report [2] this has proved to

Table 20.—Comparison of relative standard errors for work units completed January–March with work units completed January–September, 1954 [a]

Organizational division and category of work unit	Relative standard errors for—	
	January–March	January–September
(1)	(2)	(3)
Total agency	0.03	0.02
Intake, (01)	.07	.06
Home finding, (02)	.11	.06
Foster care	.03	.02
(03)	.38	.22
(04)	(b)	.20
(C–05)	.04	.03
(C–06)	.07	.04
(C–07)	.19	.12
(C–08)	.19	.12
(09)	(c)	.50
Adoption:		
(11)	.07	.04
(12)	.79	.25
(13)	.07	.03
(14)	.37	.13
(C–15)	.30	.16
(C–16)	(c)	.06
(17)	.12	.10
(C–18)	.22	.16
(19)	.09	.06
	(c)	.23

[a] Does not include the downstate operation which was not covered in the four month report.

[b] Insufficient number of work units were completed in this category to permit the computation of a standard error.

[c] Not available because of combinations of categories of work units subsequent to the tabulation of the four months of data.

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[1] Schwartz, opus cit., p. 35, table 6.

[2] Opus cit., p. 39.

be particularly important for estimating time for future work schedules in the adoption division, inasmuch as discrete work units consume a relatively high proportion of the aggregate time reported for all work units in this division—about 50 percent as compared with 10 percent for the foster care division.

The increased reliability in estimates for work unit means, gained by lengthening the period of the study must, of course, be evaluated against the increased cost, time, and effort involved. In the present context, consideration must also be given to the fact that the mean times for work units are only one of the factors going into the estimate for a performance budget. This point will be developed later in this chapter, but it should be noted here that an increase in the accuracy of mean time for work units would not necessarily result in a proportionate increase in accuracy of unit costs or performance budget estimates.

Period of time study

Further experimentation is needed with the selection of the period to be covered by time study for work measurement in a child placing agency. A design is needed which will not involve the assumption of non-seasonality, nor require as long a period of recording by casework staff as twelve, or even nine, months. Some of the difficulties that were seen in the planning stage of the projects in selecting a sample of days, weeks, or months for study time have been stated in chapter IV.

The study experience indicates that the initial concern that an intermittent sample of time would cut across the continuity of staff work on given units and thus reduce the number on which complete observations would be obtained is well founded with respect to discrete work units. However, it is not applicable to continuous work units which were developed subsequently and which include the concept of a time-limited cut-off period.

A possible design for a time sample for an agency like the Illinois Children's Home and Aid might be a study period from January through April for all work units, and then the recording of time on continuous work units alone, for the months of July and October. In combining the data, work unit means for April, July, and October would, of course, be given three times the weight of work units completed January through March. If greater precision in estimating is desired for the adoption division, say, the staff of this division alone might be asked to record all work units from January through July, or for whatever period is necessary to produce the number of work units which would yield the desired degree of reliability in the data.

Conducting a time study in an agency serially, division by division, may have many advantages over simultaneous reporting by total staff.

The assumption of stability of the operation of the agency is necessary in any event if the data is to be used for estimates of future costs, and conducting the study in serial fashion offers possibilities of smoothing out the work load of the research staff and of providing closer staff supervision of time reporting on a work unit basis. Such supervision would be especially needed if time reporting were on an intermittent basis for selected months.

One of the chief values of a field test is that it identifies the problems and difficulties that may be inherent in applying a theoretical formulation, like the present scheme of work measurement for a child placing agency, to an operating situation. Most of the problems that arose were resolved during the course of the project. Some, however, such as the problem of reporting time for case recording, were not completely solved. In a subsequent application of work measurement to a children's institution, the Pleasantville Cottage School, progress was made in handling case recording and meeting other difficult procedural problems that were brought to light in the ICH&A studies. For example, in the course of the present project the transition was made from hand to machine tabulation. However, as the description of the processing of data indicates the preparation of activity cards and work unit punch cards involved two separate card punch operations, with a number of costly intervening manual tasks. In planning the Pleasantville study, it was found possible to punch the work unit card automatically from the groupings of the activity card and, thus, to eliminate a number of manual and clerical processes. Similarly, in view of the time and labor involved in the computations of the analysis of variance for the various categories of work units, a search was made for a more suitable rough-and-ready procedure and one was found in the "sign test" described in the report of the Pleasantville study. (See chapter C, footnote 24.)

The research in the ICH&A project indicated that a valid and reliable work measurement process could be designed for a child placing agency. The further question as to the feasibility of the process for use by other agencies cannot be answered out of hand, but is largely dependent on continuing efforts to simplify and improve procedures. The question of the desirability of extending the practice of work measurement can be answered only in relation to the use that is to be made of the resulting data.

Use of work measurement in performance budgeting

A concise statement of the general uses of the performance budget and its advantages over the objective type of budget is offered by Klepak:[3]

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[3] Daniel Klepak: "Installing a Performance Budget," *Public Administration News*, Vol. III, No. 7, Sec. II, September 1957.

> "**Budget Clarity.** Because it shows at a glance what each program and activity costs, the budget is easily understood by the public as well as administrators and legislators.
>
> **Expenditure Control.** While in itself it does not lower costs, performance budgeting subjects high cost operations to administrative scrutiny they might otherwise escape. In addition, the concept of associating services with their costs produces a cast consciousness in program people at all levels, while the emphasis on unit costs encourages the setting of staff performance standards. Also, performance budgeting transfers much of the onus for cost as well as program control from fiscal staffs to operating officials. Finally, performance reporting routinely and currently compares planned and actual workload and costs, accentuating significant variations.
>
> **Program Planning and Evaluation.** Important activities, sometimes overlooked by administrators, are built into a performance budget system: defining objectives, measuring and comparing alternative needs, establishing priorities, carefully observing progress, and evaluating results continuously.
>
> **Administrative Flexibility.** One of the major arguments for performance budgeting from the administrator's viewpoint is the increased flexibility in the use of funds. Performance budgeting may be compared to a contractual agreement between the legislature and the administrator. The administrator is permitted to spend the appropriation for whatever he considers best, provided that services of the agreed upon quantity and quality are produced.
>
> **Shortening the Budget Cycle.** Performance budgeting can do much to shorten the budget cycle. Once unit costs have been developed and accepted, budgeting becomes basically a matter of forecasting workload and multiplying by unit costs to determine fiscal year estimates. This is oversimplified, of course, but the traditional "crises" approach to estimating expenditures need be little more. The process of budget examination and review becomes a year-round job of developing and refining standards."

The applicability of these advantages to social agencies in general, and to child placing agencies in particular, can be judged only after adequate experience has been had in these agencies with performance budgeting. However, two interrelated phrases in the statement quoted above are of particular importance in considering the future development of performance budgeting in child placing agencies, namely "encourages the setting of performance standards" and "provided that services of the agreed upon quantity and quality are produced."

In practice, the relationship between work measurement and performance standards is a close one. Millett, in fact, defines work measurement as "a method for establishing standards between work produced by an operating unit and manpower." [4] This is a more restricted definition than has been followed in this study, but Millett's definition does reflect a common emphasis in the use of work measurement in public administration, namely, the development of expected production standards or rates for given operations. In discussions of the administration of social agencies the problem of the development of production standards for caseworkers is commonly referred to as determining appropriate (or optimum, or equitable) workloads (or caseloads). There is general agreement that the setting of production rates or expected workloads can be meaningless, or even dangerous, unless quality as well as quantity of work performed is considered.

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[4] John Millett: *Management in the Public Service*, McGraw-Hill, New York, 1954, p. 273.

In the application of work measurement to the ICH&A as described in chapter IV, the assumption was made that in addition to consistency in method of operation, the quality of work of the agency would be constant, not only during the study period but for any subsequent period for which the results would be used for performance budgeting. In the ICH&A, continuity in leadership and stability in the general level of professional education and experience of the staff as a whole has tended to support this assumption. Other assumptions would have to be made or additional procedures employed if work measurement were to be validly applied for other purposes, as for example comparison of production rates of individual workers. For such a purpose, it would be necessary to assume, also, that the quality of the work of individual workers was uniform—or to set up procedures for measuring or controlling quality of work. Moreover, it would have to be determined that the work units produced by a worker in a given period constituted a sample of his work.

The assumption of equivalent quality in the product of individual workers in a given agency is more difficult to support than the assumption of persistence in the level of quality of work for the agency as a whole. Hope for progress in the use of work measurement for workload management in social agencies is likely to depend on progress in applying quality control to the performance of the social work staff. Some experience in the development of quality control procedures has already been reported.[5] These reports make clear that quality control cannot be set up without a system of work units. One of the important future uses of a work measurement procedure may be to provide the base for quantity quality control and subsequently for supervision and management of workloads in social agencies.

Use of work measurement for cost analysis

In chapter IV a procedure was outlined for arriving at unit costs for use in preparing a performance budget. The unit costs arrived at in this way can be used in a variety of ways for cost analysis. Millett points out that "Management has an alternative to cost accounting. This we may term cost analysis. Cost analysis differs from cost accounting in that it does not require separate and complete cost records but proceeds on the basis of existing accounting records. It may use short-cut formulas in allocating indirect costs. Such formulas are at best an approximation, but they are often accurate enough to guide management decisions." [6]

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[5] Walter M. Perkins: "Applicability of Sampling Inspection Techniques in Testing the Quality of the Job of the Public Assistance Visitor," *Social Service Review*, June 1953, pp. 153–161; Ellen J. Perkins: "Quality-Quantity Measurement of the Public Assistance Visitor's Job." *Social Service Bulletin*, November 1954, pp. 3–8.

With the data at hand it is possible, for example, to compare past costs with future anticipated costs for the ICH&A. Such a comparison is presented below:

Table 21.—Comparison of costs of service 1954 and 1957

Type of service	1954	1957	Percentage increase
Foster care—cost per month:			
Cook	$128.42	$158.25	22.8
Downstate	135.88	150.67	18.2
Adoption:			
Cook	2,126.67	2,152.39	1.4
Downstate	1,427.58	1,719.39	20.4

Both sets of cost figures are based on the 1954 work measurement data, including mean time of work units, and 1954 operating ratios and experience factors. The 1957 estimates are based on the work schedule and budget request for 1957; hence they represent anticipated future costs rather than past costs. The procedure for estimating 1957 costs follows that outlined in chapter VI. The computation of cost ratios for 1957 has already been presented in table 18. The 1957 equivalents for tables 10–15 are shown in appendix IX, A–F.

Some of the factors affecting the change in costs such as agency policy decisions were described in chapter VI. Another important factor was the rise in salary rates. As can be seen, these and other factors did not affect all of the agencies' services equally. In the case of Cook County adoptions, the increase in salary expenses was largely offset by the shortening of the period of supervision and study in infant boarding homes. In the absence of cost analysis it would not be possible to quantify in advance the various factors affecting costs and to anticipate their net effect on the costs of the different services. However, by comparing tables 10–15 with those of appendix IX, A–F., it is possible to trace change in costs through work units to complexes of work units and to complete services in each of the operating divisions.

In this illustration of short-run changes in unit costs, the assumption was made that the ratio of variable costs (like direct casework costs and maintenance of children) to other relatively fixed costs had remained relatively constant. This relationship may be subject to change and would have to be recomputed for longer run estimates.

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[6] John Millett, opus cit., p. 25.

A further important consideration in arriving at anticipated agency expenditures is that the estimates of future work schedules, operating ratios, and experience factors may be as important as mean times of work units, and that continuing improvement in these estimates must also be sought.

Further lines of work

The brief experience with the work unit project in the ICH&A has suggested the possibilities of work measurement as a continuing process for management improvement and control. As the necessary flow of statistical and fiscal information is established in the agency, the operation of the system should make no unusual demands on the staff. Once established, the procedures and the data can be refined as the occasion demands and opportunities present themselves.

A caveat might be entered at this point against premature attempts to use unit costs derived from work measurements for interagency comparisons. The problems of insuring equivalent content and quality of work as between agencies are, obviously, even more complex and difficult than those within a given agency For example, in this report only those costs currently borne by the agency are considered. No attempt was made to impute a value to volunteer services or to estimate the value of the rent of the building which the agency owns and occupies. For interagency comparisons, a uniform chart of accounts and a comprehensive classification of costs would be essential.

To move from the use of work measurement for performance budgeting as a management tool in a given agency to interagency comparisons of cost will require a carefully conceived program of statistical and accounting development, demanding the leadership of a recognized research and standard setting body along with the active cooperation of a representative group of operating agencies.

Further research and development of work measurement as a management tool in social work may proceed in a number of areas. Its uses to determine the cost of providing various types of professional service to children, in addition to casework, and for estimating differential costs of providing service to children with varying characteristics are described in the following report on the Pleasantville Cottage School study by Martin Wolins.

Appendix I

Administrative and Central Service Time Study Forms

The following forms were used in the administrative and central services time studies:

- a. Administrative staff report, W. U. S. Form 5
- b. Clinic case unit record, W. U. S. Form 7
- c. Files contact report, W. U. S. Form 8
- d. Transcription department report, W. U. S. Form 9
- e. Accounting division daily time report, W. U. S. Form 11

The administrative time report was maintained by the executive, the controller, the statistician, and the office manager. As the instructions on the form indicate, recording was done by merely running a vertical line down the column describing the programs, or combinations of programs, worked on, opposite the column listing the quarter-hour time intervals during the day.

The summary results of the reports on this form are shown in appendix 2. The preliminary distribution represents the percentage distribution of the returns as reported. However, this distribution includes time reported for the agency as a whole, and for combinations of programs. In the adjusted distribution, time reported for the agency as a whole is excluded and time reported for combinations of programs are redistributed on the basis of time reported for the individual programs involved.

The final distribution of time for the executive staff was applied to the salaries of the persons reporting and then to the salaries of immediately supporting secretarial staff.

A copy of the clinic case unit record was attached to each child's medical record. Time given by the clinic nurse or attending physician to a child during time study weeks was posted to his clinic case unit record. The kind of service that the child was receiving was noted by circling the appropriate symbol in the upper right hand corner of the form.

A files contact report was clipped to the cover of each case folder in the file at the beginning of the study period and to new folders as they were added, and the type of service provided was noted on the report form. During time study week, clerks entered a tally each time they filed or pulled a record. The amount of time involved in the operation was not recorded but was assumed to be substantially the same for each operation.

The transcription work unit record was somewhat similar in design and use to the clinic case unit record. A transcript record was inserted in each dictated cylinder sent to the transcription unit during time study week.

The accounting division daily time report form required a time analysis by type of work before a distribution by program could be made. The types of work are designated by the column headings e–k. Each column describes a type of check or voucher written, or check received. The first two columns CCBF (Cook County boarding fund) and CD (children's division) represent checks received for payment of foster home care in Cook County and these could be charged entirely to that program. For the other operations, a count of the units processed was obtained by program to which they related. Time charged to this operation, in columns a–b, was then distributed to program on the basis of the percentage distribution of the volume counts.

Because of the fiscal cycle involved in the accounting process, a full month in each quarter, rather than week per month, was taken in selected sample study periods. The plan to take the middle month in each quarter was disturbed by the installation of new accounting machines in the spring. However, the similarity of the time distributions in the three months studied suggests that this occurrence did not materially affect the results.

The final time distribution was applied to the salaries for the accounting unit except that of the controller, which was handled through the administrative staff report.

A. Administrative staff report

W. U. S. Form 5 (1–1–54) Time log Administrative Staff	Name	Date Month Day

Instructions: Chart the distribution of your time by running a vertical line down the column describing the program in which you worked. Vertical lines should connect the appropriate quarter-hour horizontal lines. Vertical lines in any two columns should not overlap but should account for all working time—including overtime—but excluding lunch time. Make appropriate entries in time columns for overtime after 6:00 P. M.

Time	Cook—except ERH			ERH only	Total Cook	Downstate only	Total agency	Time	Cook—except ERH			ERH only	Total Cook	Downstate only	Total agency
	Adoption only	Foster care only	Total or comb.						Adoption only	Foster care only	Total or comb.				
A.M.								P.M.							
8:30								3:00							
8:45								3:15							
9:00								3:30							
9:15								3:45							
9:30								4:00							
9:45								4:15							
10:00								4:30							
10:15								4:45							
10:30								5:00							
10:45								5:15							
11:00								5:30							
11:15								5:45							
11:30								6:00							
11:45															
12:00															
P.M.															
12:15															
12:30															
12:45															
1:00															
1:15															
1:30															
1:45															
2:00															
2:15															
2:30															
2:45															
3:00															

W. U. S. Form 7

B. Clinic case unit record

Case name: ____________________ Case No. __________

CLINIC CASE UNIT RECORD

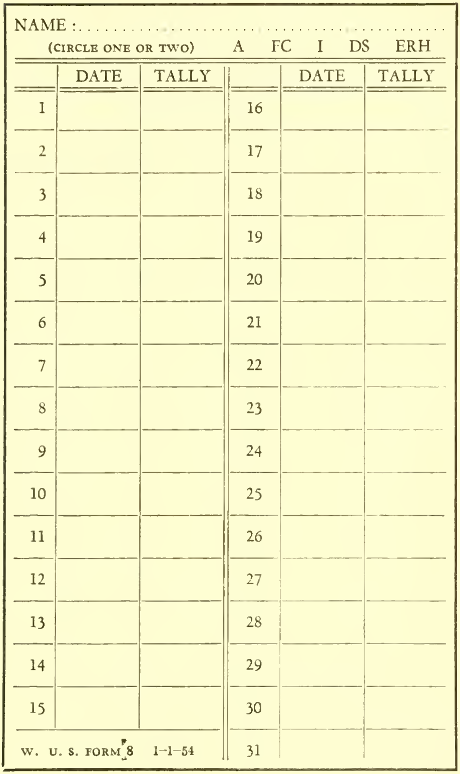
Service: (circle 1 or 2)
A FC I DS ERH
DS'office __________

	Date		Time		Estimated time (in minutes)	By (initials)
	Month	Day	From— (to closest 5 minutes)	To—		
	A		B	C	D	E
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

W. U. S. Form 7
(1-1-54)

W. U. S. Form 8

C. Files Contact Report



NAME : . . . .

(CIRCLE ONE OR TWO) A FC I DS ERH

	DATE	TALLY		DATE	TALLY
1			16		
2			17		
3			18		
4			19		
5			20		
6			21		
7			22		
8			23		
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		
W. U. S. FORM 8 1–1–54			31		

D. Transcription department report

Name:
Child .... Case No. ....
Foster parent ....
Adoptive parent ....

Service: (circle one)
A FC I HF Gen.

Transcription work unit record

	Date		Time (to closest 5 minutes)		Estimated time (in minutes)	Number of pages	By (initials)
	Month	Day	From—	To—			
	A		B	C	D	E	F
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

W.U.S. Form 9 (1-1-54)

W.U.S. Form 11

E. Accounting division daily time report

Name .... Date ....

Time		Work on (check 1)							
From–	To–	CCBF	C. D.	Boarding care	Purchase orders and trade bills	Payroll	Expense accounts	Cash receipts	Others [1] (describe)
a	b	c	d	e	f	g	h	j	k

Work for—	Checks written	Vouchers written	Checks written	Checks written	Checks received
Cook—Foster care	......	......	......	......	......
Adoption	......	......	......	......	XXX
General	XXX	......	......	......	......
Downstate—Foster care	......	......	XXX	XXX	......
Adoption	......	......	XXX	XXX	XXX
General	XXX	......	......	......	......
E. R. H.	XXX	......	......	......	......
Other or non-identifiable ...	XXX	......	......	......	......
Total	......	......	......	......	......

Accounting division

Daily time report form

2–54

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[1] Work which does not come under preceding columns, also lunch, personal and non-official use of time.

Appendix II.

Table 22.—Distribution to operating divisions of the time of administrative and central service staff

[in minutes]

Month	GRAND TOTAL	Undifferentiated	Downstate only	Total Cook	ERH only	Total Cook except ERH	Foster care only	Adoption only
January	10, 695	5, 610	135	1, 425	480	2, 850	120	75
February	8, 050	4, 170	15	60	285	2, 865	565	90
March	14, 130	5, 715	2, 025	1, 155	915	2, 760	1, 320	240
April	12, 225	6, 870	375	1, 440	465	2, 010	450	615
May	12, 300	6, 525	960	975	525	3, 030	225	60
June	15, 410	7, 560	230	675	135	5, 370	1, 005	435
July	7, 255	4, 090	495	135	240	1, 890	240	165
August	12, 765	8, 025	345	615	15	2, 475	930	360
September	15, 100	6, 390	825	885	1, 785	1, 575	3, 130	510
Total	107, 930	54, 955	5, 405	7, 365	4, 845	24, 825	7, 985	2, 550
Preliminary percentage distribution	100	51	5	7	4	23	8	2
Final percentage distribution to operating divisions [a]	100	......	10	......	10	....	64	16

[a] Percentage relating to combinations of programs were distributed on the basis of percentages reported only for the individual programs involved. The first adjustment was made for the percentage reported for "Total Cook except ERH," the second for "Total Cook" and finally for "Undifferentiated."

Appendix III.

Instructions for Use of Casework Unit Record, Including Definitions of Work Units

A. Instructions for Foster Care Division Staff

The purpose of the Work Unit Study is to develop and test a method for determining the unit costs of providing child-placing services. Unit cost data have many uses, but we are primarily concerned now with obtaining these data in a way which will prove useful in performance-type budgeting, that is, in relating financial planning to program objectives.

The method which we are using is to analyze each major type of service that the agency provides (e. g., foster home care, adoption) into the essential phases or work units which comprise the total process of providing a completed service. Staff will record on the Casework Unit Record (W. U. S. Form 3) the time invested in completing the various work units. The Casework Unit Records will be used by the research staff, along with financial and other data, to determine the costs of providing services to children.

Only enough time recording will be required to meet the needs of this study for cost estimates. This study is not designed to provide comparisons between workers, divisions or district offices. It is hoped that, within the limits imposed by the study design, administratively useful analyses, in addition to those involved in developing an improved budget procedure, may be made by the agency as by-products of the study.

Each staff member and student, who contributes to agency services by dealing directly with persons involved in child placing services, will record each day during the study period the time that he devotes to activities which can be related to a given work unit.

Use of W. U. S. Form 3—Casework Unit Record

Workers will identify their Casework Unit Records by entering their names and the date at the top of the form.

Use a separate line to describe each activity which can be related to a given work unit. Each activity of five minutes duration or longer which can be related to a specified work unit should be separately listed. Include activities carried on during overtime work.

Instructions for entries to be made in each column of the Casework Unit Record are as follows:

Column A—Case Name

For activities related to a foster-home study the name of the foster-parent applicant should be entered. For all other work units enter the name of the child.

Column B—Work Unit

Enter the code number of the work unit which describes the phase of the service on which you are currently working. Work units are defined here by listing actions which mark the beginning and the end of a work unit. All activities in which you engage between these actions should be coded to the appropriate work unit. Your time record of activities in relation to the different work units will provide us with the basis for a description, in general terms, of the actual content of the work units.

If a given activity appears to begin one work unit and to end another relating to the same child, charge the entire time taken by the activity to the work unit which is completed.

Code 03—Foster home study

Begins with the receipt of the foster-home application from the Home-Finding Unit.

Ends, if the home is to be used, with the last activity before the worker leaves the child in the continuing care of the foster mother, or by otherwise disposing of the application, e. g., rejection, withdrawal, or referral.

Code 04—Intake study

Begins with the first activity after case is received from the Intake Division.

Ends when the worker first leaves the child in the continuing care of the foster parent or when some other plan is made for the care of the child.

Code C–05—Supervision in foster home

Begins with the first activity after the worker leaves the child in the continuing care of the foster parent.

Ends with the physical removal of the child from the continuing care of the foster parent.

Code C–06—Supervision in institution

Begins with the first activity after the worker leaves the child in the care of the institution.

Ends with physical removal of the child from the continuing care of the institution.

Note.—Activities related to planning the replacing of the child which are carried on while the child is in a foster home or institution will be charged to that work unit. This also holds true for work done with the natural parents on behalf of the child while the child is in this foster placement.

Code C–07—Supervision in independent living arrangement

Begins with the first activity after the worker leaves the child in living arrangement independent of parent or parent substitutes.

Ends with the decision that this type of supervision is terminated.

Code C–08—Supervision in own home

Begins with the first activity after the worker returns the child to the home of his parents or relatives.

Ends with the decision that this type of supervision is terminated.

Code 09—Special tasks

If you perform work on a specific case which does not seem to fit into any of the above work units, use this code and indicate briefly in "Notes" the nature of the service, e. g., "Service for former ward," "Report to other agency on closed case," "Intercity service," "Service to a foster parent who does not have a child in the home and in which the major purpose is not in relation to a child under care," "general evaluation of a foster home after use, but not in relation to a specific child."

Column C—Activity

Enter one of the following code numbers to describe the activity being recorded.

Code 1—Telephone call

Any telephone conversation, whether made from the agency's office or elsewhere.

Code 2—Home visit

Any visit to a home including the child's own home, foster home, or home of collateral contact. Does not include a visit to an institution in which a child is being housed. (See Code 4.)

Code 3—Office interview or conference

Any interview or conference conducted in the agency's offices.

Code 4—Visits to other places

Interviews conducted other than by telephone or in home or agency office. Examples of visits for which this code should be used are those to clinics, schools and children's institutions and offices of collateral references.

Note.—Time spent in waiting for an appointment should be included in the time recorded for the subsequent interview or visit.

Code 5—Travel

Charge travel time to the work unit to which you are going, whether the trip begins at the office, your home, or elsewhere. If the purpose of the travel relates to more than one child, enter "see below" in column A, "Name." (The names of children or other persons subsequently listed will determine the allocation of the time for this trip.)

If the complete trip has involved work related to one child only, charge the time of travel back to the office, or home in lieu of office, to the work unit for that child. If the complete trip has involved work for more than one child, enter travel back to the office or to your home and enter dashes (—) in columns A and B. This will be the only situation in which descriptive entries will not be made in Columns A and B.

Note.—The instructions for Code 5 imply that the purpose of the travel is for the worker himself to get to the next place where work is to be done. In such instances no entry is to be made in Column D "Activity with—." In some instances, however, the purpose of the travel is primarily to transport or accompany a child or other person. In such cases the person transported should be described in Column D.

In other situations workers may take a child or other person for a drive ro provide an opportunity for an interview. If this is the major purpose of the activity, it should not be shown as Travel but As "Visits to other places." (Code 4.)

Code 6—Planning and preparation of case recording

Includes the preparation, dictation, and proofing of case records. (Special instructions for charging time of this activity are given on page 8.)

Code 7—Planning and preparation of correspondence and reports

Includes the preparation and dictation or actual execution of letters and reports.

Code 8—Planning and preparation for supervisory conferences

Includes time invested by the worker in planning for conferences with his supervisor. (Time spent in supervisory conferences should be reported under Code 3.)

Code 9—Other planning and preparation

Any time spent in planning, preparation, and "desk work" which can be tied to a given work but which is not classifiable under Codes 6, 7, or 8 should be reported here.

Note.—Provision is not made for reading of case records as a separately recorded activity. Reading of case records should be reported under the activity for which the reading is being done. For example, reading of records preparatory to recording or preparatory to supervision should be included in Codes 6 and 8 respectively.

Code 10—Miscellaneous

Use this code for activities which cannot be elsewhere classified, and provide in the space marked for Notes a brief description of the activities falling under this code, e. g., "Shopping for Child."

Supervisory codes

Supervisory staff will use the above activity code to record their direct work with cases. This will include time invested in cases for which they are directly responsible and in situations in which they are acting for the responsible worker. In addition supervisory staff will use the following codes in Column C:

Code 23—Supervisory conference

An interview with a worker for whom the supervisor is responsible concerning a specific case. (The worker will report the same conference under

Code 5—"Office interview or conference." The time entries for the two will, of course, be the same.)

Code 24—Other supervisory activities

Include here all other activities which can be related to a specific work unit, e. g., preparation for a supervisory conference, reviewing the work done on a case preparatory to official approval.

Column D—Activity with

Use this column to indicate the person or persons with whom you carried on the activity described in Column C. Enter customary case record abbreviations for natural parents, foster parents and applicants. Also use the following abbreviations:

Child	Child
Supervisor	S
Director	Dir.
ICHA consultant	Con.
ICHA caseworker	C. W.
ICHA clinic staff	Clinic
Other ICHA staff	O. St.
Student trainee	Student
Staff of other social agency	Agency's name or initials
Collateral references	Col.

The abbreviation "Col." should be used only for persons such as neighbors, friends or business colleagues of foster parent applicants. For persons other than those listed above enter the professional group to which they belong; e. g., "Teacher," "Principal," "Dentist," "Phy. Ther." (physical therapist).

If more than one person is involved in the activity enter appropriate abbreviations for all. However, do not include entries for persons whose presence is casual or incidental to the purpose of the activity.

Entries in this column should be explicit, particularly in those instances where the entry in Column C is Code 4—"Visits to other places."

"If no other person is immediately involved in the activity enter a dash (—) in Column C. (No entry here would leave it uncertain as to whether no other person was involved in the activity or whether you merely neglected to make an entry.)

Recording of Time

The recording of time is, of course, the basic measure in this research and will largely determine the allocation of the agency's expenditures. An effort has been made to define activities in terms which will result in your recording in fairly substantial blocks of time. Your efforts should be in the direction of achieving as complete a recording as possible of activities which can be charged to appropriate work units.

Columns E and F

Record in column "E" the clock time at which an activity is started and record in column "F" the time that it is terminated. Record to the closest five minutes. For example, an activity beginning at precisely 10:32 and ending at 11:18 should be recorded from "10:30" to "11:20." Time should be recorded at the beginning of, and immediately after the completion of an activity. The accuracy of the data will largely depend on the extent to which time is recorded currently. Only such time that is recorded immediately after the activity is finished should be reported in Columns "E" and "F."

Column G—Estimated time

Circumstances do arise which make it impossible to record currently the time invested in some activities. In these instances the estimated elapsed time should be entered in Column "G" in minutes, rounded to the closest five minutes. For example, 80 minutes, or 110 minutes.

Column H—Status of work unit

Indicate the status of the work unit subsequent to the activity described on this line by entering one of the following codes.

Incomplete	1
Complete except for recording	2
Complete	3

Outcome of work units

For completed work units describe in one or two sentences (in the space provided for "Notes" at the bottom of the reverse side of the Casework Unit Record) the outcome of the work unit in the following terms:

Work Unit 1.—Foster home study—Indicate (1) whether home was approved, rejected, or withdrawn, or what other disposition was made, (2) if the home is approved indicate whether approved for general use or with a specific child in mind, (3) if the home is approved for a specific child give the name of the child.

Work Unit 2.—Intake process—Indicate whether child was placed. If so, give name of foster parents, institution or describe living arrangements. If not placed, describe disposition of case.

Work Unit 3.—Supervision in foster home.
4.—Supervision in institution.
5.—Supervision in independent living arrangement.
6.—Supervision in own home.
For Codes 3–6 give reason for terminating supervision in this arrangement and describe arrangements planned for child.
7.—Special—Indicate that service has been completed.

Your entry should make clear whether another work unit is expected to follow the one completed, what type the following work unit will be and, if possible, the name under which it can be located. This is necessary to bring together the time investments on different work units relating to service for a given child.

Recording of Joint Activities

In general, you should not attempt to divide the time for a given activity between two work units which represent different phases of service to the same child. However, there are situations in which a given activity relates to different children, and these require special consideration in recording. One of these situations has already been considered in the instructions for reporting travel back to office after a trip involving several work units. (Column C, Code 5.) Another example is an interview with a foster mother who is providing care for more than one foster child. If the purpose of the visit is in relation to one child only, and if the interview is actually confined to a discussion of that child, it should be charged entirely to the work unit for that child. However, if the worker feels that the interview actually related to more than one child, he should record in one of two ways:

Option 1

If the visit actually concerned, let's say, three children, the worker can list the names of each child on a separate line and record time in column "E" and "F" as follows:

From	*To*
10:10	....
....	....
....	11:30

The research staff will then arbitrarily allocate an equal part of the total elapsed time to each child. (If the worker fails to record immediately after such an interview, an entry of 80 minutes should be made in column "G," with a bracket indicating the three lines to which the entry relates.)

Option 2

If the visit actually relates to three children but the worker believes that he can make a more accurate estimate of the time devoted to each than would be arrived at by an equal division of time, he should list all children and enter in column "G" the estimated number of minutes that he devoted to each.

A somewhat analogous situation arises in a supervisory conference during which several children may be discussed. Here the worker should decide whether a single time entry should be made in columns "E" and "F," spanning the names of all the children discussed, or whether the time should be estimated for each child and shown in column "G." In either event, an activity should be shown in a separate line for each child for whom five minutes or more are taken.

Time recorded under Code 7, "Planning and preparation of correspondence and reports," can often be shown only as a joint activity as described above. *A distribution of time among several work units on the basis of a fair estimate will be much more accurate than the complete omission of such time from your Work Unit Record.*

Entering Time for Case Recording

An exception to the general rule that the time devoted to a given activity should not be divided between two work units is necessary for case recording. Unlike other activities which refer to ongoing and future services, case recording is directly related to work already accomplished.

If the recording covers only one work unit it should be charged to that work unit even though the service to the child has advanced to another stage. For example, time for recording on an Intake Study should be charged to Code 04, even though the child at the time of the recording is under supervision in a foster home (Code 05).

If the case recording covers more than one work unit the procedure to be followed is similar to that outlined under *Recording of Joint Activities* above. However, the number of line entries will be determined by the number of different work units involved (rather than by the number of children concerned, as in the recording of joint activities). In entering time for case recording concerning more than one work unit the name of the child involved will be repeated in Column A on each line, the work units covered will be listed in Column B and Code 7 will be entered on each line of Column C, "Activity." Time will be recorded as described above under Record of Joint Activities, using either option 1 or 2.

Collection of Casework Unit Records

Workers will turn in their Casework Unit Records to supervisors at the end of each work day, or if the worker ends the day in the field, on his first return to the office.

A Casework Unit Record should be completed for each working day, and for any other day on which time is invested in casework services. If no casework services are performed during a working day the Record should be completed by writing "None" across the card.

If time is invested in work units on Saturday, Sunday or holidays, a Casework Unit Record should be prepared in the same way as for a regular work day.

B. Instructions for Intake, Home Finding, and Adoption Division Staff.

Instructions for Intake, Home Finding, and Adoption Division Staff are the same as for the Foster Care Division except for definitions of work units given below:

Intake

Code 01—Request screening

Begins with the receipt of the inquiry regarding services for a child, or with receipt of request for information.

For inquiries regarding service for a child, ends with a decision that the agency will accept the case for study, or if the decision is not to study the case, with the last activity involved in referral or other disposition of the inquiry; for requests for information, ends with the giving of a report or final reply.

Home Finding

Code 02—Foster home screening

Begins with the first inquiry from or contact with a foster parent applicant.

Ends with giving the applicant an application form to fill in and return.

Code 03—Foster home study

Begins with the first activity after giving the applicant an application form to fill in and return.

Ends with the decision to approve the use in the home or by otherwise disposing of the application by rejection or withdrawal.

Adoption

Code 11—Infant boarding home study

Begins with the receipt of the foster home application from the Home Finding Unit.

Ends if the home is to be used, with the last activity before the child is left in the care of the boarding mother who is to care for the child pending placement for adoption or by otherwise disposing of the application, e. g., rejection, withdrawal or referral.

Note.—The definition of the end of this work unit is based on the fact that, under agency practice, the preparation of the boarding mother for the care of agency children precedes a decision to approve a boarding home for use.

Code 12—Adoptive home screening

Begins with the first inquiry from, or contact with, an adoptive parent applicant.

Ends with giving the applicant an application form to fill in, or otherwise disposing of the application.

Code 13—Adoptive home study

Begins with the first activity after giving the adoptive parent applicant an application form to fill in and return.

Ends, if the home is to be used, with the last activity before the adoptive family worker gives the child's history to the adoptive family or by otherwise disposing of the application, by rejection, withdrawal or referral.

Code 14—Intake study

Begins with the first activity after case is received from the Intake Division.

Ends when the child is left in the care of the nursery home or foster home which is to care for the child pending placement for adoption, or when the plan to place for adoption is changed, e. g., with the death of the infant.

Code C–15—Supervison in infant boarding home and pre-adoption study of child

Begins with the first activity after the worker leaves the child in the care of the foster home or nursery home which is to care for the child pending placement for adoption.

Ends with the last activity before the adoptive family worker gives the child's history to the adoptive family, or with the physical removal of the child to another foster placement pending placement for adoption.

Code C–16—Supervision in boarding home

Begins with the first activity after the worker leaves the child in the continuing care of the foster parent.

Ends with the physical removal of the child from the continued care of the foster parent, or with the decision changing the plan to preadoption supervision (Code 18).

Code 17—Pre-adoption placement process

Begins with the giving of the child's history by the adoptive family worker to the adoptive family.

Ends when the worker first leaves the child in the continuing care of the adoptive parent or when a decision is made not to place the child for adoption in this home.

Note.—Both the children's worker and the adoptive family's worker will record time which they invest in the same work unit. If the pre-adoption placement process does not result in placement and the child continues to be studied in the pre-adoption boarding home, the child's worker will record such activities again under another work unit.

Code 18—Pre-adoption supervision

Begins with the first activity after the worker leaves the child in the continuing care of the adoptive parent.

Ends when the worker knows that the hearing has been held.

Code 19—Special task

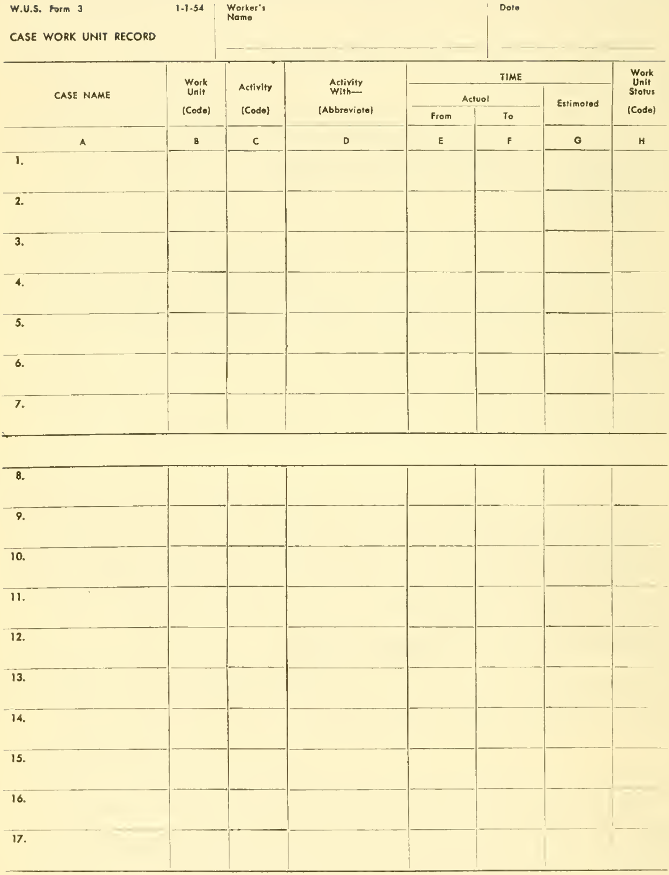
If you perform work on a specific case which does not seem to fit into any of the above work units, use this code and indicate briefly in "Notes" the nature of the service, e. g., "Post-adoption service," "Service to former ward," "Service to other agency on closed case," "Discussion with foster mother who is not currently caring for an agency child about future use of home," "General evaluation of a foster home after use, but not in relation to a specific child."

C. Instructions for Downstate Staff

(The instructions for the use of W. U. S. Form 3—Casework Unit Record—followed those for the Cook County staff and the definitions of work units were the same.)

Appendix IV

Case work unit record



W.U.S. Form 3 1-1-54

CASE WORK UNIT RECORD

Worker's Name

Date

CASE NAME	Work Unit (Code)	Activity (Code)	Activity With— (Abbreviate)	TIME			Work Unit Status (Code)
				Actual		Estimated	
				From	To		
A	B	C	D	E	F	G	H
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							

(Over)

CASE NAME	Work Unit (Code)	Activity (Code)	Activity With— (Abbreviate)	TIME			Work Unit Status (Code)
				Actual		Estimated	
				From	To		
A	B	C	D	E	F	G	H
18.							
19.							
20.							
21.							
22.							
23.							
24.							
25.							

NOTES: Use this space to explain codes marked with asterisk (*) on code card. Precede explanation with line number of entry to which explanation relates.

W.U.S. Inst. Form 2 1-1-55

WORK UNIT RECORD (Cott pts.)

Staff Member's ☐☐☐

Name ....

Title ....

Date ☐☐☐

Mo. Day

Line No.	CLIENT'S NAME (Last Name First)	Activity (Circle One)	Activity With— (Circle One)	TIME Actual From	TIME Actual To	TIME Estimated	Remarks
	A	B	C	D	E	F	G
1	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
2	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
3	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
4	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
5	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
6	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
7	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
8	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
9	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
10	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
11	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
12	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
13	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
14	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
15	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
16	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
17	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	

(Over)

Line No.	CLIENT'S NAME (Last Name First)	Activity (Circle One)	Activity With— (Circle One)	TIME			REMARKS
				Actual		Estimated	
				From	To		
18	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
19	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
20	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
21	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
22	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
23	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
24	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	
25	☐☐☐☐☐☐	C I H M	C P S O N			☐☐☐	

Notes: Explain below all codes marked with asterisk (*) on code card. Always precede explanations with line number to which it relates.

W.U.S. Inst. Form 1 1-1-55

CASE WORK UNIT RECORD

Staff Member's ☐☐☐

Name ....

Title ....

Date ☐☐☐ ....

Mo. Day

Line No.	CLIENT'S NAME (Last Name First)	Activity (Code)	Activity With— (Abbreviate)	TIME			Remarks
				Actual		Estimated	
				From	To		
	A	B	C	D	E	F	G
1	☐☐☐☐☐☐		☐			☐☐☐	
2	☐☐☐☐☐☐		☐			☐☐☐	
3	☐☐☐☐☐☐		☐			☐☐☐	
4	☐☐☐☐☐☐		☐			☐☐☐	
5	☐☐☐☐☐☐		☐			☐☐☐	
6	☐☐☐☐☐☐		☐			☐☐☐	
7	☐☐☐☐☐☐		☐			☐☐☐	
8	☐☐☐☐☐☐		☐			☐☐☐	
9	☐☐☐☐☐☐		☐			☐☐☐	
10	☐☐☐☐☐☐		☐			☐☐☐	
11	☐☐☐☐☐☐		☐			☐☐☐	
12	☐☐☐☐☐☐		☐			☐☐☐	
13	☐☐☐☐☐☐		☐			☐☐☐	
14	☐☐☐☐☐☐		☐			☐☐☐	
15	☐☐☐☐☐☐		☐			☐☐☐	
16	☐☐☐☐☐☐		☐			☐☐☐	
17	☐☐☐☐☐☐		☐			☐☐☐	

(Over)

Line No.	CLIENT'S NAME (Last Name First)	Activity (Code)	Activity With— (Abbreviate)	TIME			REMARKS
				Actual		Estimated	
				From	To		
18	☐☐☐☐☐☐		☐			☐☐☐	
19	☐☐☐☐☐☐		☐			☐☐☐	
20	☐☐☐☐☐☐		☐			☐☐☐	
21	☐☐☐☐☐☐		☐			☐☐☐	
22	☐☐☐☐☐☐		☐			☐☐☐	
23	☐☐☐☐☐☐		☐			☐☐☐	
24	☐☐☐☐☐☐		☐			☐☐☐	
25	☐☐☐☐☐☐		☐			☐☐☐	

Notes: Explain below all codes marked with asterisk (*) on code card. Always precede explanations with line number to which it relates.

W.U.S. Inst. Form 3 1-1-55

WORK UNIT RECORD (Phych.)

Staff Member's
Name .... ☐☐☐
Title ....

Date .... ☐☐☐
Mo. Day

Line No.	CLIENT'S NAME (Last Name First)	Activity (Abbrev.)	Activity With— (Circle)	TIME Actual From	To	Estimated	Remarks
	A	B	C	D	E	F	G
1	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
2	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
3	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
4	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
5	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
6	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
7	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
8	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
9	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
10	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
11	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
12	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
13	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
14	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
15	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
16	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
17	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	

(Over)

LINE NO.	CLIENT'S NAME (Last Name First)	Activity (Abbrev.)	Activity With— (Circle)	TIME			REMARKS
				Actual		Estimated	
				From	To		
18	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
19	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
20	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
21	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
22	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
23	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
24	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	
25	☐☐☐☐☐☐	☐	C P S O N			☐☐☐	

Notes: Explain below all codes marked with asterisk (*) on code card. Always precede explanations with line number to which it relates.

Appendix V

Job tickets for screening units

A. REQUEST SCREENING (Intake Division)

NAME: ____________________

INITIATED ___ BEFORE ___ AFTER JANUARY 4, 1954

WORK UNIT: (CIRCLE ONE)

1. INTAKE SCREENING
2. REPORT ON FOSTER HOME
3. REPORT ON CLOSED CASE
4. SERVICE FOR FORMER WARD
5. COUNSELLING AND INFORMATION ONLY
6. SPECIAL (SPECIFY) ________

DISPOSITION: (CIRCLE OR CHECK ONE)

1. ACCEPTED FOR STUDY
2. WITHDRAWN
3. REJECTED
4. REFERRED
5. REPORT GIVEN
6. INFORMATION GIVEN
7. SPECIAL (SPECIFY) ________

	DATE	INTERVIEW OR CONFERENCE					OTHER CASE ACTIVITY	TIME			BY
								ACTUAL		ESTIMATED	
	MONTH DAY	TEL.	OFFICE	HOME	ELSEWHERE	WITH		FROM	TO		(INITIAL
	A	B	C	D	E	F	G	H	J	K	L
1.											
2.											
3.											
4.											
5.											
6.											

RACE: ___ WHITE ___ NEGRO ___ OTHER

MARITAL STATUS: ________

NO. OF CHILDREN: ________

CHILD A: M F AGE: ________

CHILD B: M F AGE: ________

W.H.S. FORM 1

B. FOSTER HOME SCREENING (Foster Home Unit)

NAME: ____________________

INITIATED ___ BEFORE ___ AFTER JANUARY 4, 1954

	DATE		INTERVIEW OR CONFERENCE					OTHER CASE ACTIVITY	TIME		
	MONTH	DAY	TEL.	OFFICE	HOME	ELSE-WHERE	WITH		ACTUAL		ESTIMATED
									FROM	TO	
	A		B	C	D	E	F	G	H	J	K
1.											
2.											
3.											
4.											
5.											
6.											

DISPOSITION: (CIRCLE ONE)

1. REFERRED, REJECTED, OR WITHDRAWN
2. ACCEPTED FOR STUDY
3. OTHER (SPECIFY) ____________________

RACE: ___ WHITE
___ NEGRO
___ OTHER

NUMBER AND SEX OF CHILDREN REQUESTED:

1___ 2___ 3___ 4___ 5___ 6___

AGE OR DATE OF BIRTH:
MAN ____________
WOMAN ____________

WORKER: ____________

W.J.S. FORM 2

Appendix VI

Layout of activity punch card

	Column	
	1– 2	*Worker*
	3– 4	*Month*
	5– 6	*Day*
	7–12	*Case number*
	13	*Ordinal rank of child in family*
	14–15	*Line number* (of case work unit record)
	16–17	*Work unit*
	18–19	*Activity*
	20–21	*Activity with* (1)*
	22–23	*Activity with* (2)*
	24–25	*Activity with* (3)*
	26–28	*Time* (minutes)
	29	*Work unit status* (complete or incomplete with termination of this activity)
	30	*Type of time recording* (actual or estimated)
Cook County only----------	31	*Division* (intake, foster care, adoption)
	32	*Class of worker* (caseworker, supervisor, director)
	33	*Class of work unit* (continuous or discrete)

*Provision made for recording three persons with whom activity was conducted.

Appendix VII.

Specimen listing of activity cards grouped into work units [1]

Line number	Case number		Work unit	Month completed	Worker's number	Number of minutes	Type of card
	Family number	Child's number					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A							
1.	39427	2	05	03	34	87	*1*
2.	39427	2	05	04	34	50	*1*
3.	39427	2	05	05	26	30	2
4.	39427	2	05	05	34	111	2
5.	*39427*	2	*05*	*05*	*00*	141	*1*
B							
106.	40683	1	08	07	41	30	2
107.	40683	1	08	07	53	80	2
108.	40683	1	08	08	41	60	2
109.	40683	1	08	08	42	60	2
110.	40683	1	08	08	52	110	2
111.	40683	1	08	08	53	200	2
112.	40683	1	08	08	00	540	*1*
113.	40683	*1*	*09*	*09*	*53*	*75*	*1*

---

[1] Items in italic illustrate manual coding.

Explanatory note:

Each line in the above exhibit, except those shown as deriving from manual coding, is obtained by tabulating machine processes which pull together all activity cards relating to time reported by a given worker on a given work unit for a given child in a given month.

For example, line 1 shows that worker 34 gave 87 minutes for foster care supervision of a child identified by number 39427 in the month of March. Inasmuch as the work unit "foster care supervision" is a continous type of work unit, that is, one representing a child-month of care, and worker 34 is the only member of the agency staff reporting time on this work, the line is code "1" in column 8, indicating that a card should be punched including the data on this line to represent a complete work unit for inclusion in the work measurement results. Similarly line 2, representing time given in April by the same worker to the same child in the same category of work unit, is also coded as a complete work unit.

In May, the case worker's supervisor (designated as worker 26), as well as the case worker himself, reported giving time for this child. Both lines 3 and 4 are coded "2" in column 8 because they each represent only part of the time given to the child. Line 5, which pulls together all time given for the child in this month for this worker, is coded "1" in column 8 for the preparation of a card representing a complete work unit.

Section B, above, first shows the listing for a discrete work unit "pre-adoption placement process (08). In July time was given by the case worker (53) working with the adoptive family and this worker's supervisor (41). In August these two staff members as well as the worker (52) supervising the care of the baby in the infant boarding home and this worker's supervisor (42) all reported time in connection with the "showing" of the baby to his prospective new parents and the actual moving of the baby to his new home. Inasmuch as this work unit was not completed until August, the only line for this work unit coded as a complete work unit in column 8 is line 112, which brings together all the casework time going into the pre-adoption placement process. If this work unit had been started before the beginning of the study and not completed before or at the end, it would have been coded as an incomplete work unit.

In September, a continuous work unit 09, pre-adoption supervision, is reported by the caseworker (53).

Appendix VIII.

Table 23. Distribution of time data for each category of work unit

Organizational division and category of work unit	First quartile	Number of minutes at the—		Third quartile
		Median	Mean	
Intake, 01	5	10	32	25
Homefind, 02	10	20	51	40
Foster care, 03	65	340	1, 225	2, 458
04	52	106	384	541
C–05	55	145	280	319
C–06	238	630	867	1, 300
C–07	15	80	161	223
C–08	45	150	212	395
09	15	35	72	85
Adoption, 11	73	213	537	805
12	20	30	58	45
13	47	187	587	626
14	70	160	251	325
C–15	70	165	251	320
C–16	20	115	294	330
17	615	1, 035	1, 350	1, 544
C–18	(1)	37	125	185
19	20	45	111	105
Downstate, 21	17	35	77	95
22	17	40	61	95
23	25	90	200	396
24	90	131	264	173
C–25	15	61	280	120
C–26	25	152	280	425
C–27	15	74	169	190
32	15	50	78	105
33	35	360	495	876
34	150	380	630	765
C–35	90	222	336	460
37	529	757	908	1, 070
C–38	(1)	75	105	150
39	23	66	116	115

---

[1] The value for the first quartile for the work unit "pre-adoption supervision" in both Cook County and downstate fell in the group of "zero" work units, meaning that at least one fourth of the work units in these two categories were completed without the investment of any casework time.

Appendix IX

Estimated cost of service units, 1957

Table A.—Cost of work units

	Category of work unit (1)	Total cost except maintenance [a] (2)	Percent of minutes for complete work units (3)	Unit costs of complete work units, except maintenance (4)	Maintenance (5)	Unit costs of complete work units (6)
Intake	(01)	$16.9017	94.8	$16.0282		$16.0282
Home finding	(02)	6.5569	63.1	4.1374		4.1374
Foster care	(03)	230.5160	97.5	224.7531		224.7531
	(04)	72.2598		70.4533		70.4533
	(C–05)	59.6518		58.1605	$87.33	145.4905
	(C–06)	163.1489		159.0702	74.80	233.8702
	(C–07)	30.2964		29.5390	.94	30.4790
	(C–08)	39.8934		38.8961		38.8961
	(09)	13.5486		13.2099		13.2099
Adoption	(11)	164.2833	94.0	154.4263		154.4263
	(12)	17.7438		16.6792		16.6792
	(13)	179.5796		168.8048		168.8048
	(13)	76.7879		72.1806		72.1806
	(C–15)	76.7879		72.1806	70.21	142.3906
	(17)	413.0075		388.2224		388.2224
	(C–18)	38.2411		35.9466		35.9466
	(19)	33.9580		31.9205		31.9205

Downstate	(21)	19.7952	96.2	19.0437		19.0437
	(22)	15.6824		15.0865		15.0865
	(23)	51.4177		49.4638		49.4638
	(24)	67.8713		65.2922		65.2922
	(C–25)	71.9848		69.2494	101.76	171.0094
	(C–26)	71.9848		69.2494	86.88	156.1294
	(C–27)	43.4479		41.7969		41.7969
	(32)	20.0528		19.2908		19.2908
	(33)	127.2588		122.4230		122.4230
	(34)	161.9657		155.8110		155.8110
	(C–35)	86.3817		83.0992	64.14	147.2392
	(37)	233.4362		224.5656		224.5656
	(38)	26.9942		25.9684		25.9684
	(39)	29.8222		28.6890		28.6890

---

[a] From table 19 column 8.

Table B.—Cost of accepting a child for care

Type of care and category of work unit (1)	Work unit cost (2)	Number of requests screened to select one for study (3)	Cost of selecting one child for study (4)	Number of children studied to accept one [a] (5)	Cost of accepting child (6)	Average number of months of care (7)	Average acceptance cost per month of care (8)
Cook County							
Foster care:							
Intake request screening, (01)	$16.0228	6.1939	$99.2436	2.1667	$215.0311		
Intake study, (04)	70.4533			2.1667	152.6512		
Total					367.6823	69	$5.3287
Adoption:							
Intake request screening, (01)	16.0228	6.1939	99.2436	1.0240	101.6254		
Intake study, (14)	72.1806			1.0240	73.9129		
Total					175.5383		
Downstate							
Foster care:							
Intake request screening, (21)	19.0437	1.3922	26.5126	1.1429	30.3013		
Intake study, (24)	65.2922			1.1429	74.6225		
Total					104.9238	17	6.1720

Adoption:							
Intake request screening, (21)	19.0437	1.3922	26.5126	1.2308	32.6317	...	...
Intake study, (34)	155.8110	...	...	1.2308	191.7722	...	...
Total	...	...	...	...	224.4039	...	...

---

[a] The cost of the screening operation, the first step in accepting a child, includes the selection for study of those children who are subsequently not accepted as well as those who are. For this reason the cost of selecting one child for study as shown in column 4 is multiplied by the number of children studied to accept one, as shown in column 5. In the second line of the cost computation for acceptance for each type of care the ratio of children studied to children accepted is again used against the work unit cost of an intake study to arrive at the average cost of the second step in accepting a child.

Table C.—Cost of accepting a home

Type of home and category of work unit (1)	Work unit cost (2)	Number of homes screened to select one for study (3)	Cost of selecting one home for study (4) (2)×(3)	Number of homes studied to approve one [a] (5)	Cost of approving home (6) (4)×(5)	Average number of months of use (7)	Average cost of a month's use of home (8) (6)÷(7)
Cook County							
Foster home:							
Foster home screening, (02)	$4.1374	69.4783	$287.4595	2.0000	$574.9190		
Foster home study, (03)	224.7531			2.0000	449.5062		
Total					1,024.4252	127	$8.0663
Infant boarding home:							
Foster home screening, (02)	4.1374	69.4783	287.4595	2.1250	610.8514		
Infant boarding home study, (11)	154.4263			2.1250	328.1559		
Total					939.0073	32	29.3440
Adoptive:							
Adoptive home screening, (12)	16.6792	10.4457	174.2259	1.5333	267.1406		
Adoptive home study, (13)	168.8048			1.5333	258.8284		
Total					525.9690		

Downstate							
Foster and infant boarding home:							
Foster home screening, (22)	15.0865	7.0625	106.5484	2.2857	243.5377		
Foster home study, (23)	49.4638			2.2857	113.0594		
Total					356.5971	15	23.7731
Adoptive home:							
Adoptive home screening, (32)	19.2908	6.8987	133.0814	1.3860	184.4508		
Adoptive home study, (33)	122.4230			1.3860	169.6783		
Total					354.1291		

---

[a] The cost of the screening operation, the first step in accepting a home, includes the selection for study of those homes which are subsequently not accepted as well as those which are. For this reason the cost of selecting one home for study as shown in column 4 is multiplied by the number of homes studied to accept one, as shown in column 5. In the second line of the cost computation for each type of home the ratio of homes studied to homes accepted is again used against the work unit cost of a foster home study to arrive at the average cost of the second step in accepting a home.

Table D.—Cost of foster care per month

Type of foster care and constituent parts (1)	Work units (2)	Cost (3)
Cook County		
Service to children in foster home (total)		$158.9252
Accepting foster home	(02)-(03)	8.0663
Accepting child	(01)-(04)	5.3287
Supervision and board	(C-05)	145.4905
Special tasks	(09)	[a] 0.0397
Service to children in institution [b] (total)		239.2386
Accepting child	(01)-(04)	5.3287
Supervision	(C-06)	233.8702
Special tasks	(09)	[a] 0.0397
Service to children in independent living arrangement (total)		35.8474
Accepting child	(01)-(04)	5.3287
Supervision and board	(C-07)	30.4790
Special tasks	(09)	[a] 0.0397
Service to children in own home (total)		44.2645
Accepting child	(01)-(04)	5.3287
Supervision	(C-08)	38.8961
Special tasks	(09)	[a] 0.0397
Downstate		
Service to children in foster home (total)		201.5407
Accepting foster home	(22)-(23)	23.7731
Accepting child	(21)-(24)	6.1720
Supervision and board	(C-25)	171.0094
Special tasks	(39)	[a] 0.5862
Service to children in institution [b] (total)		162.8876
Accepting foster child	(21)-(24)	6.1720
Supervision	(C-26)	156.1294
Special tasks	(39)	[c] 0.5862
Service to children in own home (total)		48.5551
Accepting child	(21)-(24)	6.1720
Supervision	(C-27)	41.7969
Special tasks	(39)	[c] 0.5862

---

[a] Estimated as described in table 13, footnote a.

[b] Includes only costs of service provided by foster care division in Cook County, or by downstate division; does not include cost of service provided by the institution.

[c] Estimated as described in table 13, footnote c.

Table E.—Cost of complete foster care service

Type of service (1)	Number of child-months care provided[a] (2)	Percentage (3)	Monthly cost (4)	Weighted cost (5) (3)×(4)	Average cost of a month's foster care service (6) (5)÷100	Average number of months of service (7)	Average cost of complete foster care service (8)
Cook County							
Total	3,444	100.00	....	$15,825.4511	$158.2545	69	$10,919.56
In foster home	2,220	64.46	$158.9252	10,244.3184	....	....	....
In institution	720	20.91	239.2386	5,002.4791	....	....	....
In independent living arrangement	282	8.19	35.8474	293.5902	....	....	....
In own home	222	6.44	44.2645	285.0634	....	....	....
Downstate							
Total	468	100.00	....	15,067.1735	150.6717	17	2,561.42
In foster home	228	48.72	201.5407	9,819.0629	....	....	....
In institution	120	25.64	162.8876	4,176.4381	....	....	....
In own home	120	25.64	48.5551	1,071.6725	....	....	....

[a] Represents number of child months of care to be provided in 1957.

Table F.—Cost of complete adoption service

Constituent parts of service (1)	Work unit (2)	Monthly cost of selected work units (3)	Months of service for selected units (4)	Total cost (5)
Cook County				
Total				$2, 152.3934
Accepting infant boarding home	(02)-(11)	$29.3440	3.5	102.7040
Accepting child	(01)-(14)			175.5283
Supervision and board in boarding home	(C-15)	142.3906	3.5	498.3671
Accepting adoptive home	(12)-(13)			525.9690
Pre-adoption placement process	(17)			388.2224
Pre-adoption supervision	(C-18)	35.9466	12.7	456.5218
Special tasks (including post-adoption service).	(19) [a]			5.0808
Downstate				
Total				1, 719.3872
Accepting infant boarding home	(22)-(23)	23.7731	3.5	83.2059
Accepting child	(21)-(34)			224.4039
Supervision and board in boarding home	(C-35)	147.2392	3.5	515.3372
Accepting adoptive home	(32)-(33)			354.1291
Pre-adoption placement process	(37)			224.5656
Pre-adoption supervision	(C-38)	25.9684	11.7	303.8303
Special tasks (including post-adoption service).	(39) [a]			13.9152

[a] The unit cost of *special tasks* was estimated by first obtaining the ratio of the cost of all other categories of work units to the cost of this category. The same ratio was then established for the unit cost of all the constituent parts of the service to the costs of *special tasks.*

Appendix X

Acknowledgments

A listing of all the individuals who contributed to the study of "Adoption and Foster Home Costs" in the Illinois Children's Home and Aid Society would be embarrassingly long for so slender a report. Grouped, but none-the-less grateful, acknowledgment is made to the staff of the Illinois Children's Home and Aid Society, who contributed the basic data for this project while at the same time discharging their primary responsibilities for providing services to children; to the faculty of the School of Social Administration of the University of Chicago, who provided an essential constructive criticism and a sustaining encouragement; and to the staff of the Children's Bureau, who made possible the completion of this project through its incorporation in its work program.

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Much needed assistance at critical periods in the arduous task of editing the basic statistical data was given by Miss Hannah Adams, research assistant and now director of research for the National Board of the YWCA, and in the supervision of some of the statistical computations by Mrs. Eleanor Hunt of the Children's Bureau. Without the courage, insight, and unwavering support of Miss Lois Wildy, executive director of the Illinois Children's Home and Aid Society, the project on adoption and foster home costs could not have been accomplished.

COST OF CARE IN A CHILDREN'S INSTITUTION

MARTIN WOLINS

Director of Research
Child Welfare League of America

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A. INTRODUCTORY SUMMARY*

I. Why This Study

Introduction

According to estimates by the U. S. Children's Bureau, there were 240,000 children receiving institutional care in the United States in 1950. The cost of all institutional care absorbs 6 to 7 percent of the funds allocated by private community chests and united funds, in addition to substantial public funds allocated to children's institutions.

The sizable number of children served in institutions and the funds spent to serve them should concern taxpayers and contributors who put up the money—and the institution boards and administrators who carry responsibility for spending it.

Periodically, many institutions in the United States report on the number of children cared for, and the types and costs of services. Although enlightening in terms of the institutions reporting, these reports in the aggregate are meaningless because there is no basis for comparison between them. The usual common denominator is "per capita" cost. But what does this term include? Does it include costs of services, such as fund raising and publicity, which may be located in a central chest or council? Does it consider expenditures inevitably required for replacement of plant? Does it include the costs of outside services such as volunteers, or access to a nearby hospital or tax supported educational system, which appear to be free but indirectly reflect expenditures of either time or money by the institution?

In addition, most per capita cost reports fail to provide information on the purposes of the institution, the kinds of children served and the methods and kinds of personnel used in providing the services. Yet costs vary according to the purpose of the institution, some programs being more expensive than others. Costs are also affected by administrative structure and the characteristics of children accepted for care.

These many variants make traditional per capita cost figures impossible to compare. Detached from content, the figures are functionally meaningless. Perhaps the most striking evidence of the failure of per capita cost figures to reflect institutional purposes and needs is the variety of formulae used in reimbursement to institutions by public sources from which children are accepted for care. Some communities determine reimbursement on the basis of specific symptoms of children accepted. Others differentiate between purposes of institutions, even though no clear line of demarcation may exist. Still others consider the ratio of psychiatrists, psychologists and caseworkers to children under care.

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*This chapter will serve as an introduction to the study of institutional care and cost and will outline procedures and findings. Complete details will be found in the chapters that follow and in the technical appendixes.

Actually, all three considerations seem warranted. It is certainly meaningful to take into account characteristics of different children (specific symptoms) in considering the cost of each. It is also meaningful to consider the agency's purpose and the kinds and cost of staff employed to carry it out. What has been lacking is an interrelation of these three factors—a simultaneous view.

The purpose of this study is to present such a related picture.

Reasons for selecting the institution studied

This study has been confined to a single institution with full knowledge that the specific *findings* on cost cannot be generally applicable, but with the belief that *methods* used to compute costs in this institution can be used in others.

This belief was based on the fact that the institution provided a wide variety of services to children of both sexes, with a broad age range, and a broad range of problems and intelligence levels. The program offered all of the services institutions are likely to offer—residential services organized around cottage life and activities, educational services on the grounds, and a treatment program which included casework, psychology, psychiatry and remedial education.

The children under care represented various home and socioeconomic backgrounds, and were referred for a variety of reasons from a number of different sources.

Especially important is the fact that the institution's services are recognized as being of good quality. This study is not concerned with how to compute the cost of care, per se, but with how to compute the cost of *good* care. It was also important that the agency had sufficient interest in research to meet the requirements of the study for gathering and publishing the data.

Character of the institution

The institution studied is one part of a large sectarian child care agency, largely financed by a federated fund raising and planning body, and by governmental reimbursements.

The institution recapitulates a historical transition from care of orphans to treatment of emotionally disturbed children. Like many institutions, it was originally founded as a sheltering and guardian society, but has changed function as well as location a number of times.

In the beginning, it was primarily a "home." Then it became mainly a school. Now it is largely a treatment agency that has retained the functions of home and school but subordinated these to the requirements of treatment for a population of disturbed children.

At the time of the study, the institution provided care and treatment services for an average of 190 boys and girls, aged 7 to 16.[1] A large proportion (more than two-thirds) came from emotionally inadequate homes. Nearly 90 percent of the children themselves were classified as emotionally disturbed. They were housed in groups of less than twenty, occupying eleven cottages. A representative array of personnel served the children: administrative staff, cottage, activity and medical personnel, social workers, psychologists, psychiatrists and remedial teachers, clerical, maintenance, and other auxiliary staff.

Methods used in the study

If cost of care is to reflect what an institution is and does, whom it serves, and who does the serving, each of these factors must be clearly understood and methods developed for measuring their share of the total cost.

In order to remodel a traditional line budget into one that will show how much each function costs, the first step must be an analysis of institutional purpose and functioning. Functional costs are, of course, affected by those who perform the function, and by those who are the recipients. Therefore, building a functional budget requires:

A time study to determine staff time invested in each unit of care, and procedures to measure the cost of the time investment

Relating the different demands made on staff time and funds by children with differing characteristics—in other words, correlating the time study data with characteristics of children as obtained from their records or from interviews with staff

Relating personnel characteristics to the cost of care—again correlating the time study data (and cost data based on the time study) with staff characteristics.[2]

This study has undertaken to define and measure the costs of institutional functioning in the institution examined, taking the above factors into account. Some areas have been treated more intensively and extensively than others, for reasons described in the chapters which give details about each. Technical appendixes provide information which it is hoped can guide other institutions wishing to reexamine expenditures in relation to function and the time-and-cost influences exerted by characteristics of population and staff.

---

[1] 190 was, as indicated, the *average* population. However, in the course of the study 221 children passed through the institution and were included in the computation.

[2] In this study correlation was made with limited characteristics of one category of staff, social workers.

Converting budgetary structure to reflect institutional purposes

A traditional line budget lists the cost of expenditures in various categories but does not reflect the cost of specific services. It does not, for instance, answer questions such as:

> What is the total cost of social work?
> What proportion of the cost of care is invested in activities of cottage staff or watchmen?
> How much do some of the staff receiving maintenance really cost?

Conventionally, a line budget is organized in such categories as salaries and wages, maintenance, administration expenses, institutional operations, and fixed charges. To extract from a traditional budget the cost of cottage staff, for example, it is necessary to examine the following lines:

> Salaries and wages—for salaries of cottage parents
> Quarters maintenance—for quarters
> Institutional operation—for food and linen
> Fixed charges—for several kinds of insurance.

The function of an institution, however, is not realistically described in terms of "maintenance" or "institutional operations," but rather in terms of the services that must be purchased to achieve its purposes. The institution studied has one primary purpose—care and treatment of children—and two subsidiary purposes—training of professional personnel and research. To achieve its primary purpose, it offers an array of services originating either within the institution or within the parent agency of which the institution is a part. Major services are of two kinds, residential-educational and treatment, under a supervisory administrative structure. A conversion of the line budget into a function or service budget reveals the cost of each of these services and their component parts. The service budget also shows the proportion of the total cost of institutional operation which can be charged to each service.

Here is a simplified illustration:[3]

	Percent
Total institutional care (approximately 190 children for 6 months, Jan. 1–June 30, 1955)—$397,513.06	100
Residential care	64.4

Housing, 12.9 percent; meals, 11.8 percent; clothing, 4.2 percent; household staff, 5.2 percent; medical-dental services, 3.5 percent; cottage staff, 16.6 percent; school, tax-supported; activity program, 6.8 percent; general residential expenditures, 3.4 percent

---

[3] Other factors which may result in expenditure are administrative and status structure of the institution, the flow of communication, perception of institutional purposes, personal needs of staff which may or may not conflict with institutional purposes. These "intangibles" affect cost and probably also the quality and effectiveness of care. Although they require study, they lie outside the limits of this research.

	Percent
Treatment services	17.6
Casework, 6.6 percent; clerical service, 1.3 percent; psychiatry, 2.9 percent; remedial education, 1.6 percent; psychology, 0.7 percent; intake (part of central service of parent agency), 4.4 percent	
Administrative services (resident and part of central)	18.0

In the above abbreviated service budget, items are classified in terms of needs they are intended to meet. Suppose an administrator wants to estimate cost of care for one child or for a particular category of children, or for a particular period of a child's stay in the institution, or perhaps the cost of admitting or discharging him. How can this be done?

A common method is to assume that all children cost the same each day, regardless of age, degree or quality of disturbance, home environment, whether newly arrived or veteran residents of the institution. As this study will demonstrate, such an assumption is misleading. While some services are the same for each child (for example, housing, meals, administration), others (for example, cottage staff services, casework, psychiatry) vary considerably among children. Costs of services which are similar for all children and may reasonably be computed on a per diem basis are called "fixed costs." Services which vary from child to child are the basis of "variable costs."

A primary objective of this study is to demonstrate how to compute these variable costs, and thus help those concerned find realistic ways to answer questions such as are suggested above.[4]

Variable costs—units of service

In order to establish a basis for the variations in costs among children, possible cost differences accompanying three major factors of care were explored. These factors were:

Units of service being completed
Kinds of children with whom units are being completed
Kinds of staff involved in the completion.

The service unit:

In this study, the progress of a case from the initial screening, which determines whether the agency can help the child, through the child's discharge or aftercare, is called a *service unit*. It designates a completed sequence of services given before, during and after institutional placement. The sequence is general among institutions, but is too large to be used in measurement of cost. To reduce the service unit to measurable dimensions, it has been broken down into component parts, called *work units*.

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[4] Ultimately, the agency may wish to know, however, what the total costs of care for a given child are likely to be; i. e., what is the sum of both fixed and variable costs for a particular case. The process of such a computation is given following the materials on variable costs, in table 1.

Work units within the service unit:

Eight work units have been identified as common in institutional care. They are:

Screening: deciding whether the child can be served by the agency

Intake: determining where and how service will be given to those accepted

Pre-admission: working with the child and family in the process of placing the child in care

Admission: transfer of custody from home to institution

Institutional adjustment: the period when institutional emphasis is on the child's way of relating to institutional environment

Life adjustment (treatment): when the emphasis is on the child's future relation to his community environment

Discharge: the process of preparing the child and his family for his return

Aftercare: helping the child reintegrate in his community

Work units are, then, concrete identifiable phases in the processing of a case.

Each work unit may, of course, be further broken down into component operations, such as interviews, recording, desk work. This has been done in order to illustrate and distinguish operational differences between the units. They have also been divided into subunits of time intervals (a month of care) when the duration of the work units, as in the case of life adjustment (29 months), was too long to be examined all in one piece. However most description of services is in terms of whole work units.

To determine the variable costs of completing a work unit it was necessary to locate every child in the institution in one of the units, keep records of the staff time invested in his behalf and compute what that time cost the institution.

To collect this information, time records were kept for ten months, showing the child and staff members working with him. Keeping these records were: cottage parents, social workers, psychiatrists, psychologists, resident supervisors, medical and dental personnel, activity staff, remedial teachers, and clerical staff attached to the treatment services.

When information on time invested by each category of staff in completing a work unit was available, it was correlated with service budget figures on the cost of that staff time. With the correlation, it became possible to compute cost of work units for each category of staff separately or for all staff jointly. Such computation revealed great variation in both time and funds *between* units (for example, intake, discharge, admission have different costs) and also *within* units (for example, some discharges are much more costly than others). Since details of work unit costs are described in a subsequent chapter, they will not be reported here.

However, the service of social work may serve as an example of the kind of data that emerged from the time study and budgetary analysis for all units.[5]

Table 1 describes what may be considered a social work "profile" of an average (mean) case, built up from averages of work units. The table shows that an average case continues for 1,240 days (41 months) and requires 11,280 minutes (188 hours) of social work service, which costs approximately $737.[6] Similar "profiles" may be produced for the other services, giving simultaneously a service cost for each individual work unit and for the total sum of the work units making up an average service unit—covering all service to the case.

Table 1.—Mean time and cost requirements of social work for completion of work units and service units

	Work unit									Service unit
	Screening (0)	Intake (1)	Preadmission (2)	Admission (3)	Institutional adjustment (4)	Life adjustment (5)	Discharge (6)	After care (7)	Service to closed cases (8)	
Duration in days....	5	65	15	1	54	863	94	143	.....	[a] 1240
Minutes of service...	23	506	495	144	835	7, 640	750	835	52	[a] 11280
Cost in dollars......	1. 22	26. 32	32. 67	9. 53	55. 11	504. 24	49. 50	55. 11	3. 43	[a] 737.13

[a] These totals require minor modification which will not be undertaken here. An example of such modification is the necessity to multiply the cost of screening by the number of screenings needed to achieve an admission, in order to get the actual cost of social work in a case. The actual cost of social work and other services is given in table 18.

How characteristics of children relate to variable costs

If difference in costs between children at a given time were due to differences in services received, then logically there should be no difference in costs for children receiving the same services at the same time; that is, all children simultaneously in the intake or discharge work unit, or any other, should cost the same. But they do not.

Some intakes cost only a few dollars; others, more than $100, with an average (mean) of about $30. Some discharges cost about $100;

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[5] While in the present study records were kept for approximately one year in order to build up a "profile" which would have tolerable predictive accuracy in a fairly close future, it is recognized that for practical purposes this would be an impossibly long period. Since a two-month period at the beginning of the study was found to yield results which were acceptably good predictors of a seven-month period later that same year, perhaps two months' recording will suffice for predictive purposes.

[6] The study reported here terminated in 1956. Obviously, since that time many changes both in the operation of the agency and in cost have occurred.

others, several hundred dollars, with an average of about $350. Similarly, for all the other work units, the differences in the amount of staff time required and in the total cost of completing them are very marked.

What causes such differences? Is the cost of service related to the characteristics of the children? To the characteristics of the staff serving the children?

Review of the literature on children's characteristics and cost of care provided one comprehensive scheme for describing characteristics of children in care.[7] Using this scheme, it was possible to relate children's characteristics to time consumption and cost. Some marked differences in cost were discovered among different categories of children. Among the characteristics most related to cost were the problem that brought the child to the institution, the structure of the child's family, and his functioning intelligence. Among other factors with impact on cost which will not be discussed in this introduction, but dealt with in detail in chapter D, are: source from which the child is referred, whether or not he is foreign born, whether his family unit is complete and what socioeconomic status it occupies, the child's age and sex, how secure or insecure he may be and whether he is a leader or follower.

The following findings summarize briefly the relation of cost to the nature of the child's problem and the problem of his family.[8] One problem category is the "seriously disturbed child," which includes aggressive, delinquent and severely emotionally disturbed children. The other, called "family problem," includes those cases where the main emphasis is on the inadequacy of the family. When the cost of serving these two categories was computed for the extensive unit called "life adjustment" or "treatment," it was found that a child spent an average of 29 months in this work unit. Broken down into subunits of monthly intervals, the variable costs in the "treatment" work unit were $146 per month for the "seriously disturbed," as compared with $119 per month for the "family problem" group.

Differences also occurred in the service time given by several staff categories to these two groups of children. In a month's time, cottage parents spent 430 minutes per child in the disturbed group, and 405 minutes in the other group; social workers spent 316 minutes per child in the first group, and 246 in the second; psychiatrists, 331 and 240; psychologist, 229 and 195. Among a number of staff categories, then, the "seriously disturbed" children required more time than the "family problem" children. They also had a higher aggregate variable cost.

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[7] Henry S. Maas et al.: *Conceptual Framework for Research in the Children's Field*, Berkeley, Calif.: School of Social Welfare, University of California, June, 1954 (dittoed).

[8] In a subsequent chapter, this characteristic is divided into six categories, but only two are considered here.

For those concerned with predicting cost as accurately as possible, the point is that *predictions which took into account such characteristics as the child's problem, or family structure, or intelligence, produced less error than those based only on the mean cost of the work unit.*[9]

Relationship of characteristics of personnel to variable costs

Another factor that may introduce cost differences in the same work unit is personnel. An attempt was made to relate the degree of experience of social workers to the cost of social work services in each work unit. It was found that the cost of the worker and the supervision he received varied greatly between students, beginning, and experienced workers. Nevertheless, the over-all cost of completing a unit was remarkably similar for all three experience levels. The study did not, however, develop enough material to permit thorough analysis of the relationship between personnel and cost of care, and the findings are not extensive enough to prove that such a relationship does or does not exist.

II. Use of the Data

The cost of institutional care has thus far been examined in terms of its relation to purposes and functioning of program, units of service produced, characteristics of children who receive care and characteristics of staff who give it.

Agencies gathering such data about their own program costs may utilize them in a variety of ways. The following possibilities are presented, with the caution that they are neither definitive nor exhaustive, being of necessity based on the single setting employed in the study. It must also be kept in mind that proposals for utilization of the data have yet to be implemented in practice in institutions other than the one studied.

Use of the service budget

The service budget reveals that per minute personnel category costs are clearly greater than salaries alone. Although developed primarily for the the immediate purpose of determining per minute costs for use in the study, the service budget has a long term value for administrative use. If it is known how much a given service costs within the full framework of other services and against the background of institutional purposes, it is possible to evaluate more precisely from a cost standpoint alternative methods of purchasing the service.

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[9] Had these characteristics accounted for the full range of costs, prediction would have been perfect and the error reduced to zero; but they did not, and the reduction was between 30 and 40 percent. Why was not error reduced more than that? There are probably numerous reasons, but the one of most consequence may well be the inadequate classification procedures used in this research to describe the children and an inexact relationship between diagnosis and treatment.

For example, the medical-dental service in the institution under study is operated at a cost of approximately $28,000 per year, or 3.5 percent of the total cost of institutional operation. Knowing this cost, it is possible to answer questions such as the following:

> **Would it cost more or less to abandon the medical-dental program, employ one nurse and purchase group medical-dental care for the children?**
>
> **Since the institution cared for an average of 190 children at any time during the period of the study, it means that the average annual cost of medical-dental care per child was about $150. Can such care be purchased for less from health underwriters or from local professionals?**

Another example is the cost of children's housing. The annual cost of housing 190 children, including their cottages, school and activity space, exceeded $100,000 and was nearly 13 percent of the total cost of institutional operation. This is a cost of more than $500 per child per year. Questions here include:

> **Is $500 per year too high a cost for housing a child in an institution?**
>
> **Is the age of the plant a substantial factor in such housing costs?**
>
> **Are similarly computed housing costs in more recently built plants lower or higher?**
>
> **Should the plant, considering its cost per child, be continued in use, remodeled, or abandoned?**

The service budget goes a long way toward answering these questions in the institution studied. Were *comparable* service budgets available for other institutions, the answers would be even more valuable.

It is not intended to suggest here that cost should be the sole basis for making decisions about specific services. It is not the function of a children's institution to save or spend funds, but to care for children. Accurate knowledge of cost can, however, provide a realistic fiscal basis for decisions about the maximum care and treatment services that can be offered within the always limited available resources.

The service budget reveals with marked clarity the relative costs of individual programs, thus permitting decisions as to their relative appropriateness against the background of financial resources. For example:

> **What should be the relative cost of casework service and activities?**
>
> **What should be the relative relationship of funds devoted to psychiatry and medical-dental services?**
>
> **What should be the relative relationship of funds devoted to administration and treatment services?**

Answers to such questions must always depend upon the service emphasis of the institution, the needs of children cared for and the goals sought. *Comparable* budgetary data from other settings, with clear descriptions of the settings, would help considerably in tallying these subjective factors with objective costs.

Use of work unit data

Work unit data also provide some answers. Caseload assignments, for instance, may be newly viewed in terms of the work unit data, which revealed that monthly time requirements are nearly twice as high per child for new admissions as for children already in treatment or discharge units. Thus, with work unit data at hand, it is not only possible to establish the mean number of minutes of casework required per child per month, but also to prepare a caseload formula which will take into account the differing time demands of children in different work units.

Requirements of the child in each work unit are, of course, the roots of cost. Earlier, two kinds of costs were differentiated: *variable costs,* chargeable to individual children for the distinctive services they receive; and *fixed costs,* in which all children share and which require per diem distribution.

The work units reveal in detail the variable costs in each staff category, thus showing the relative share of each variable cost in every work unit, as well as showing their total expense in the whole case. With this information we may answer questions such as:

> **Who would be involved, and to what extent, in the event that agency practices with regard to aftercare service were to be modified, either increasing or decreasing the number of units of care offered?**

The cost of service would increase $57 per case in the event that aftercare were given and decrease by $57 in the event that aftercare services were not given. The great bulk of the service cost ($48) is in social work, with minor service in psychiatry, and auxiliary clerical work. Occasionally other staff would become slightly involved.

This is the type of question which work unit data can answer for administrators wishing to establish priority of expenditures in line with achievement of institutional goals.

Fixed and variable cost data also reflect the extent of the obligation that an agency undertakes when admitting a case. The data can be used to show cost of an average case, and what variable and fixed costs enter into the total.

In the institution studied an average case (service unit) costs nearly $12,000. Here is the breakdown:

Personnel category	Cost
Cottage parents	$1,851
Social workers	733
Psychiatrists	392
Psychologists	75
Resident supervisors	57
Medical-dental	502
Remedial teachers	229
Activities	515
Clerical	37
Approximate total variable costs	4,400
Approximate fixed costs*	7,500
Approximate total cost	11,900

*Computed on the basis of approximately $7.00 per diem during child's stay in the institution, plus $488 for every intake that terminates in an admission. These costs include such items as administration, clerical services, children's housing, meals and other items not directly chargeable to the individual child. Clothing has here been included in fixed costs, although in the chapter on work unit costs it is treated as a special kind of variable cost.

As distinct from service budget data, which reflect cost of a *service*, the work unit data reflect costs of *individuals* or groups of children receiving that service. The cost of maintaining the service and the institution itself as operating units has been removed from the variable costs and included in fixed costs.

An example will help clarify this distinction. In the service budget, remedial education is 1.6 percent of total cost, and casework 6.6 percent, or a ratio of about 1:4. In the variable costs, that is, in services directly to children, remedial education is 5.2 percent and casework 16.7 percent, or a ratio of about 1:3. The duties of remedial teachers consist almost entirely of direct service to children, whereas casework staff, especially supervisors, have duties in addition to direct work with children.

The cost of staff may thus be judged on two levels: 1) staff having direct relationship with children and other responsibilities; and 2) staff having exclusively direct relationship with children.

Use of characteristics of children

Throughout the discussion of work units, attention has been called repeatedly to the fact that there is considerable variation in cost among intakes, among discharges, among months of treatment. These variations seem partly accounted for by characteristics of children.

Information on children's characteristics may be used in two related ways:

1. To estimate staff time required for a case, thus permitting allocation of personnel.
2. To estimate cost of care for budgetary or reimbursement purposes.

To illustrate, we have selected two hypothetical cases and "processed" them through the institution, relating information on work units and characteristics of children.

> Child A is an aggressive-delinquent [10] pre-adolescent of low intelligence from an incomplete family unit (that is, resides with mother only).
>
> Child B is a somewhat disturbed pre-adolescent of high intelligence from a complete but inadequate family.

All other characteristics of these children are assumed to vary according to the laws of chance. Except, then, for the characteristics described under A and B, the children are considered alike.

When time and service demands made by children A and B are considered, what are the cost estimates in the most extensive work unit—"treatment?" [11]

Work unit	*Child A*	*Child B*
Screening	$16.13	$16.13
Intake	520.71	520.71
Pre-admission	34.70	34.70
Admission	15.26	15.26
Institutional adjustment	624.05	624.05
Treatment	12,035.00	9,454.00
Discharge	1,006.69	1,006.69
Aftercare	21.49	21.49
Service after case closed	14.82	14.82
Total	$14,288.85	$11,707.85

Treatment for approximately 29 months for both children

	Child A	*Child B*
Monthly variable costs	$205	$116
Monthly fixed costs	210	210
Total monthly costs	415	326
29 months' care	$12,035	$9,454

As the above data show, there is a difference in estimates of more than $2,500 per case. Whether a child accepted for care is an A or B child would certainly make a considerable difference in establishing reimbursement rates or fees for cost of care.

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[10] The term "delinquent" is not used in its legal sense. The agency does not admit children who are initially adjudged delinquent by the court. (See page 220 for a definition of the term "aggressive delinquent.")

[11] There are large variations in the cost of each of the other units. These are not accounted for in the presentation in this chapter. (See page 218 for an explanation of why only treatment costs were used for prediction of variations.)

Let us now look at three other children, C, D, and E, also in the treatment work unit. Their characteristics also vary like A and B according to laws of chance, except that child C has a low I. Q. (65–84), child D an average I. Q. (85–114), and child E a high I. Q. (115–154).

Each one of these children is as likely as the other two to receive or not to receive psychiatric care, but the amount of time required by those who do receive it varies greatly, as the table below shows.

Table 2.—Time investment of psychiatrist in behalf of children of low, average and high I. Q.

Work unit	Child C (low I. Q.)	Child D (average I. Q.)	Child E (high I. Q.)
	Minutes of service	*Minutes of service*	*Minutes of service*
Screening	0	0	0
Intake	57	57	57
Pre-admission	(*)	(*)	(*)
Admission	0	0	0
Institutional adjustment	214	214	214
Treatment	16, 211	8, 107	7, 569
Discharge	945	945	945
Aftercare	(*)	(*)	(*)
Service to closed cases	(*)	(*)	(*)
Total time	17, 427	9, 423	8, 785

*Psychiatric service is rarely given in these work units.

These figures indicate that the low I. Q. child who receives psychiatric care requires nearly twice as much time in the treatment work unit as the high I. Q. child. Over the span of the treatment period the difference may be more than 100 hours, certainly an important consideration in the budgeting of personnel time.

More information relating children's characteristics to all phases of institutional service is presented in succeeding chapters. The intent in this introduction is merely to give some examples.

Still needed, however, is research dealing with questions this study raises, either explicitly or implicitly, and does not answer.

We do not know, for example, the effect on cost of the several "intangible" factors mentioned earlier.

We do not know what the relationship is between the duration of a case and the effectiveness rating of the child's worker.

We have found that certain characteristics of children tend to be related to high service costs, but we do not know *why*.

We do not know in detail what accounts for the much higher quantity of social work invested each month in the institutional adjustment work unit than in the treatment unit.

As knowledge of such factors increases, it will permit agency administrators, boards and contributors, as well as public officials who determine reimbursement rates, to answer more realistically than at present questions about cost in relation to the achievement of child care goals.

B. INSTITUTIONAL PURPOSES AND BUDGETARY STRUCTURE

I. Budgetary Items in Cost Computation

The institutional budget, whether the traditional "line" form reflecting *types of expenditures*, or designed to reflect *services*, has meaning only against the background of purposes—and of how the institution tries to achieve them.

Services offered and their cost are directly affected by organizational and budgetary structures and, in turn, affect these structures. It is thus vital that any study of cost be projected against the background of purpose and function, and that budgetary categories be developed to reflect the true cost of the services they are intended to purchase. Required for the purpose of such an analysis is a simultaneous view of the nature of the institution with its component parts, and of the institutional budget as it relates to these.

The first step, then, is to define the nature of the institution. A recent study of a mental hospital includes in such a definition three basic principles of organization: "the purposes of the institution, the institutional necessities, and the requirements of persons composing the institution."[1]

In the institution studied, the first of the principles—purpose—is primarily care and treatment of children with subsidiary purposes of training personnel and performing research. (The care and treatment of children obviously includes work with parents and other members of the family as required by professional decision.)

The second principle of institutional organization cited is that it supply the necessary means to carry out the purposes. In this institution there is a continuous inflow of children. There is staff to serve them and money to buy the needed goods and services. There is a physical plant. Arrangements exist for communication and decision making.

The third principle cited involves the people composing the institution. This study will examine the characteristics of both children and staff as they affect program and the direction program takes, drawing on plant, staff, goods and services to fulfill the primary institutional purpose—care and treatment of children.

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[1] Alfred H. Stanton and Morris S. Schwartz: *The Mental Hospital*, New York: Basic Books, Inc., 1954, p. 27.

Historical perspective

Present institutional operation is determined not only by current functional demands but also by historical development.

The institution under study is an old and venerable one. Its development recapitulates the history of transition from orphanages to treatment institutions. Established in the 1870's as a sheltering and guardian society, it was once primarily an asylum located in the heart of the metropolitan area. However, even at that time the purpose was more than provision of physical care. One of the founders, writing in August 1880, states:

> It is our benevolent purpose and religious aim to care for such * * * children as by law are required to be placed in an institution removed from all vicious influences, and from which inmates are to be prepared to go forth into the world properly educated. * * *

Like other institutions in the United States, it was accepting educational responsibilities and becoming a school as well as an asylum. This broadening was eventually to be reflected both in the organization of the institution and in its philosophy.

Shortly after the turn of the century two new influences affected further development. The first was the rapid growth of the foster home program. The second was the development of the cottage system. The 1902 annual report of the institution states:

> A new and larger home for our children is admitted on all sides to be an absolute necessity. * * * Information is being persistently and industriously sought on all sides, so that your Board will have the best available expert advice. * * * Three plans and methods are now under discussion; they are: 1st. The cottage system. 2nd. The pavilion system. 3rd. A combination or modification of the present aggregate system and the cottage system.

The report for 1912 speaks of the completion of a cottage-type institution located in the suburbs some distance from the center of the city.

With the development of a cottage plan along with extensive educational facilities, the institution became not only an asylum and school, but also a "home." Children now lived in "family size" groups with more immediate adult contact.

In 1925, with the establishment of a child guidance department under the direct supervision of a noted psychiatrist, psychiatric treatment was added to the functions of shelter care, education, and homelike environment. Over the years treatment has assumed ever greater importance.[2]

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[2] See Mary Lois Pyles: *Institutions for Child Care and Treatment,* New York: Child Welfare League of America, February 1947, pp. 7–10, for a discussion of the transition from asylum to school, to home, to treatment oriented social agency.

See also Howard W. Hopkirk: *Institutions Serving Children,* New York: Russell Sage Foundation, 1944, Chapter 2, "Development of Institutions from Asylums and Orphanages into Schools or Homes," pp. 10–21.

The old functions of home and school are now used to fulfill treatment purposes. The institution is both a residential and a treatment agency. For each of these parts, we may note purpose, institutional requirements, and institutional costs.[3]

Physical plant

Whether service is predominantly residential, educational, treatment or all three, it is given within the confines of a physical plant. Therefore, service is affected by the limitations which plant imposes upon function.

As is true in many institutions, the physical plant here reflects the impact of past history on present day function. The plant was completed, except for some recent additions, more than forty years ago and was designed to accommodate several hundred children more than it now houses.[4] It is beautifully laid out on approximately 170 acres of rolling, wooded countryside in an upper middle class suburban community, about an hour's train ride from the center of the metropolitan area served by the institution. The plant is easily reached by train, bus and auto and the nearby towns are accessible to the children and the staff.

As indicated in chart I, there are twenty-eight buildings. Eleven are cottages currently housing children. Five buildings and one part of a sixth, house staff, while another five and the other part of the sixth are used for activities, medical and social service, school and administrative offices.

Of the remaining six buildings one contains two dining rooms (one for children, another for staff) and a kitchen, two buildings are vacant,[5] and the others are a power house, a shop and a clothing-room-laundry. Kitchen-dining halls, swimming pool and gymnasium have been built since 1945; the other twenty-five buildings are part of the original plant

Age of the plant is reflected in need for modernization—a factor both in functioning and in costs. Requirements for repair, replacement and redesigning are continuous and naturally affect cost. Function is automatically governed by what is possible in plant facilities. For example, if the agency were to decide that a child needed to be separated from the cottage and put in a room by himself, it could not provide such a room at present because single sleeping rooms are not available in the cottages. In those cases where the agency decides to separate the child from group living, usually for a very short period, the child is housed in the infirmary.[6]

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[3] Discussion of requirements of staff and children composing the institution is postponed to later chapters dealing with characteristics—and, by implication, needs—of children and staff.

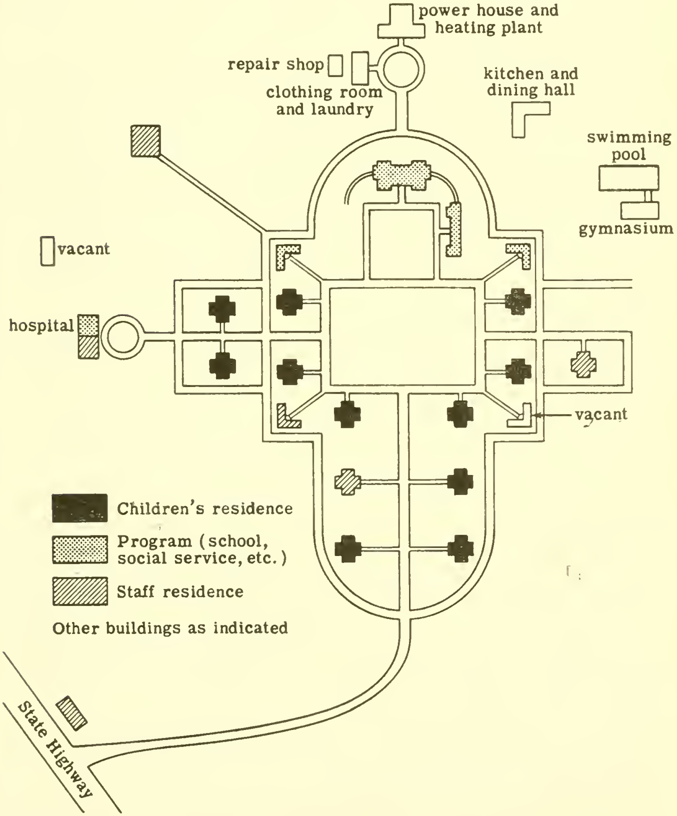
[4] The record of children in the institution on July 1, 1920, shows a census of 568 as compared with a census of about 190 on the same day and month in 1955.

[5] One of the vacant buildings houses some summer staff and, on occasion, children from a cottage being painted or remodeled.

Modernization has been concentrated mainly in the cottages. It has included the installation of new heating plants, removal of major food preparation activities and most dining to the central kitchen and dining room, and remodeling of the living and sleeping quarters.

Chart I.

PHYSICAL PLANT OF THE INSTITUTION UNDER STUDY



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[6] The agency is giving serious consideration to the development of a small diagnostic facility which will in certain instances also be utilized for children temporarily removed from their cottages.

Cost of plant operation.

Cost of personnel and supplies which add up to the cost of plant operation must be excerpted from the line budget of the agency.

The form of the budget of the institution under study is traditional, determined to a large extent by custom and by requirements of the central fund raising body. The institutional budget consists of five main categories of expenditure: salaries and wages, maintenance, administrative expenses, institutional operation, and fixed charges. Each of these is further broken into sections and subsections reducing budgetary items to considerable detail, still organized by type of expenditure.

Computing costs of plant operation or of any other service component requires crossing budget lines to determine cost of specific services and staff. For example, services of the business manager or a cottage parent contribute to the cost in four of the five line categories of expenditure listed above. Their salaries are included in the category of salaries and wages; quarters, for which they receive repair and maintenance, are charged under maintenance; their food and linens are charged under institutional operation; and their fringe benefits (pension, retirement and other insurance) appear under fixed charges.

To separate out the cost of specific services, the line budget needs to be converted to a "service budget." Just as a line budget groups items by *type of expenditure*, so the service budget groups them by *type of service*.

In the institution studied, there are three major types of function: residential care, treatment, and administration. (If desired, administrative costs could be allocated to residential care and to treatment.) These categories, like those of the line budget, may be divided and subdivided to reduce them to the desired detail while maintaining organization by type of service. However, before it is possible to redistribute expenditures in order to arrive at cost of services, it is necessary to pinpoint the costs of certain units of housing and food which tend to enter into all three of the service categories.

In computing the cost of housing (that is, the cost of operating the physical plant and providing any part of it for use in the program) a number of assumptions were made. These were:

1. A specific unit of housing of a given size costs the same to maintain as every other unit of the same size in the institution, whether occupied by children or staff, or used as classroom, dining hall or office.

2. Housing costs need be applied only to function related space. *Function related space is defined as all space occupied or used by the children in connection with the institution's program—or space occupied by staff as living quarters when the quarters constitute part of their salary.* Other space such as power plants, warehouses, etc., will be considered as used in servicing the plant. Function related space must therefore be defined and its extent measured.

3. If an expenditure is predominantly for housing with some indistinguishable portions chargeable elsewhere, the whole item will be charged to housing. This would apply to salaries, services or materials.

4. Plant depreciation will not be considered as part of housing cost. The institution under study has followed the general custom of not including depreciation in the cost of care. The question of how to begin depreciating a plant that is nearly fifty years old remained unsolved and depreciation was therefore unavoidably, though regrettably, omitted.

Against the background of the above assumptions, cost of housing was computed by obtaining the number of cubic feet of space and relating it to the cost of plant maintenance.

Table 3.—Cost of plant maintenance and operation [1]

Item	*Cost in dollars*	
Repairs to buildings and equipment	12,063.12	
Repairs to kitchen equipment [2]	−190.08	
		11,873.04
Repairs to furniture		1,520.61
Materials for repairs		3,545.87
Replacement of building equipment	3,546.14	
Refrigerator and stove parts and service [2]	−412.32	
		3,133.82
Replacement of furniture		2,164.65
Gas and electricity	5,734.64	
Gas for meal preparation [2]	−973.75	
		4,760.89
Fuel (oil)		21,810.49
Linens and bedding		326.65
Other supplies (cleaning materials, etc.)		1,359.35
Taxes (half year pro-rata)		2,918.00
Salaries (business manager, painters, carpenters, electricians, mechanics, groundsmen, and seamstresses working on linens but not children's clothing)		19,699.27
Hospital service, health insurance, social security		734.54
Worker's expenses		98.15
Plant maintenance and operation staff housing (theoretical value computed on the basis of $6.74 per 100 cu. ft. for 6 months period; $1,078.40 for 16,000 cu. ft. is already included in plant maintenance).		
Food costs [3] staff family @ 73.73 per month	442.38	
Other staff 1,800 meals @ $.475	855.00	
		1,297.38
Total plant maintenance		75,242.71

[1] These are actual budgetary data for the fiscal period January 1–June 30, 1955, as are all other data in this chapter. Nonrecurring items and capital expenditures are exempted from the budget.

[2] Although these items appear as one in the budget it was actually possible to take out of it an expenditure chargeable to meal preparation to be found subsequently . See table 4.

[3] Food costs of staff family based on actual withdrawals from institutional storehouse for month of January 1955. Meal costs for other staff computed on pp. 167, 168.

After the cost of plant maintenance was obtained, it was divided by the total number of housing units in order to determine cost per unit. The unit chosen in this study is 100 cubic feet. The institution encompasses 1,116,000 cubic feet of function related space.

Cost of plant maintenance	$75, 242. 71
Cubic feet of function related space	1, 116, 000
Cost per 100 cu. ft. for Jan. 1–June 30, 1955	$6. 74

As computed above, the cost of $6.74 per 100 cubic feet includes not only maintenance of the building where the space is located, provision of fuel, water and light, but also replacement of furniture, supply of linens, maintenance of grounds, and upkeep of a swimming pool which is available to all children and staff who live or are employed in the institution. In accordance with assumption 1, page 164, this cost per 100 cubic feet is applied uniformly to all function related space, regardless of whether the space is used for offices, residence or school.

The institution as a residence and school

General care of the child is provided by the residential and educational aspects of the institution's program. These aspects include shelter, food, clothing, medical and dental service, cottage life, school, and group activities.

Shelter

Shelter is in cottages. Each child shares in the approximately 1250 square feet of dormitory space, subdivided into three- and four-bed units. Since cottage populations vary it is not possible to compute the exact space per child.[7]

For the average cottage population of 15 there is a little more than 80 square feet of dormitory space per child, with an equal amount of living-room study-hall space, or a total of about 160 square feet per child in each cottage.[8]

Space in a low income city apartment is 150–200 square feet per person; in a small ranch-type house about 250–300 square feet per person. The major difference between family and institutional housing is the almost complete lack in the latter of space for the child's private use.[9]

Within the institution, a child of a middle income family has far less private space and somewhat less total space than he would have residing with his family. The child from a low income family probably receives as much space in the cottage as at home, or even more, and perhaps no less space for his private use.

Cottage space alone is not, however, an adequate gauge for comparison. Other facilities are far above the level to which the child from a low income group is accustomed and equal to those open to the middle income group, as well as being more easily accessible for both. The institution provides a first-rate campus with extensive grounds, play fields, wooded walks and beautiful lawns, as well as a gymnasium, swimming pool and other recreational facilities.

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[7] During the study period cottage population varied from 10 to 19 children.

[8] The 160 sq. ft. total does not include kitchens, lavatories, storage rooms, laundry space or staff quarters.

[9] There are individual lockers in which private possessions, including clothing, toys, correspondence, etc., may be kept by the child under lock, if he so desires.

At the time of the study, a cottage capable of housing a maximum of 20 children was utilized as follows:

Basement: Generally not utilized.

		Square feet
Main floor:		
Living-room dining-room	33′ x 18′	594
Game room	18′ x 19′	342
Kitchen	21′ x 18′	378
Coat room	9′ x 14′	126
Staff quarters (2 rooms with one bath)	10′ x 30′	300
Foyer and stair well.		
Second floor:		
Dormitory	18′ x 35′	630
Dormitory	18′ x 35′	630
(Each dormitory is divided into 2 units of 3 beds each and 1 unit of 4 beds).		
Children's lavatory and shower room	10′ x 20′	200
Staff quarters (room and bath)	10′ x 20′	200
Third floor:		
Laundry room	13′ x 15′	195
Staff quarters (1 room and bath)	13′ x 15′	195

The cost of such a cottage (38,000 cubic feet minus 7,000 cubic feet of staff occupied space), including all services listed under plant maintenance, was $2,089.40 for a 6-month period, or $348.23 per month. Assuming that the cottage houses 15 children, the housing cost per child per month was, then, $23.22.

However, the children use *more* than cottage housing. They use the gymnasium, dining halls and school. When this space is included with cottages, the residential program uses 763,700 cubic feet of space. The total cost is logically chargeable to the residential care program. Over a 6-month period (Jan. 1–June 30, 1955) this total cost was $51,473.38 and constituted 12.9 percent of the cost of institutional operation.

Food

Food is another item in institutional maintenance of children as well as in maintenance of certain categories of staff.

It has been traditional institutional practice to estimate food costs on the basis of the price of the raw food. Usually the item is accounted for on a per diem basis, obtained by dividing the cost of raw food by the number of person-days (children and staff) on grounds.

This method overlooks an important cost factor: *preparation of meals*. Since only prepared meals may be considered completed, consumable units, the cost of preparation, including maintenance of the dietary plant, utilities, and staff, should be taken into account. When this is done, table 4 results.

Table 4.—Cost of prepared meals

Item	*Cost in dollars*	
Food	42,180.93	
Storehouse withdrawals, 11 families [1]	−5,542.56	
		36,638.37
Diet and kitchen supplies		2,622.76
Repairs to buildings and equipment [2]		190.08
Materials for repairs		0.00
Gas for cooking [2]		973.75
Replacement of building equipment [2]		412.32
Salaries of dietician, assistant to business manager, cooks, dining room and kitchen attendants		19,424.35
Insurance [3]		941.94
Workers' expenses		33.97
Housing 31,580 cu. ft.[4]		2,128.60
Food 1 staff family (2 persons)		360.00
8,327 served meals @ .475, $3,955.33, already included in cost of food preparation.		
Total		63,726.14
Cost of meals		63,726.14
Number of meals served		134,253
Cost per meal [5]		.475

[1] Storehouse withdrawals are based on cost of actual withdrawals during January, 1955.

[2] See computation of plant maintenance costs for source of these items. While the regular line budget does not contain a sufficiently fine breakdown to allow the separation of these items between housing and food the supporting bookkeeping entries allow such a separation.

[3] Insurance includes: hospitalization, medical and health insurance and OASI. Expenses refers to workers' expenses, i. e. reimbursable expenditures for travel, meals, lodging, etc., incurred in performance of assigned functions.

[4] Housing cost based on the rate previously computed.

[5] The per diem cost of meals is equal approximately to 3 ($.475), that is, $1.425 or $1.43. When computed on the basis of food only (as it is done in many institutions) the per diem cost is approximately $.8187 or 82 cents.

As the table shows, it costs somewhat less than $1.50 per day to prepare and serve three meals to a child or staff member. During the 6-month period January 1—June 30, 1955, approximately 98,820 meals were served to children at a total cost of $46,939.50, or 11.8 percent of the total cost of institutional operation.

Meals are well prepared and pleasantly served. There is considerable variety of foods, and the menu is not predictable, with the exception of a few traditional occasions.[10] Little if any distinction exists between food served children and staff food, although they are served separately except for those cottage parents who eat with the children.[11]

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[10] A member of the research staff familiar with institutional dietary procedures attempted to develop a predictive system for forecasting menus. The attempt failed, much to the satisfaction of the dietician, who was informed about it after the fact. Informal inquiry indicated that much of the time the children did not know the menu until the meal was on the table.

[11] Similarity of menu for children and staff is not without its difficulties. The nutritional needs and, even more, the nutritional wants of the staff, differ considerably from those of the children. Since meals must be planned with the needs of children in view, those staff preferences that are not in line with such planning must largely remain unsatisfied, with some resulting discomfort and complaints.

Children are given three regular meals at the customary hours, and usually snacks in the afternoon and evening. They eat in their cottages on Friday nights, Saturdays and Sundays, and in a central dining hall on weekdays. Service is family style for children and cottage parents; cafeteria style for the rest of the staff. Staff meals are served in a small central dining room which for a time during the study was also used by about thirty older children, although not simultaneously with staff.

Clothing

Along with the other residential amenities, the agency supplies clothing. About half of the children bring a substantial supply of clothing with them. However, all receive some clothing from the institutional stores during their stay.

In general, the clothing of children in the institution does not vary from that worn by children in the nearby towns, with the possible difference of somewhat greater uniformity due to institutional limitation in style and color, especially in the boys' clothing. Girls' clothes are more varied, partly, perhaps, because of the clothing allowance received by the older girls. While clothing is physically and aesthetically adequate, it is not over-abundant. A typical inventory of clothing issued by the institution to one male and one female child in October, read as follows: [12]

Girl

6 pair anklets.
1 bathrobe.
1 pair bed slippers.
6 blouses.
2 bras.
2 brushes (hair, nails).
dresses (occasionally).
2 face cloths.
1 comb.
6 handkerchiefs.
4 pair pajamas.
6 pair panties.
1 raincoat and hat.
1 pair rubbers.
2 pair shoes.
6 skirts.
2 slips.
1 pair sneakers.
1 suit.
1 sweater.

Boy

1 bathrobe.
1 pair bed slippers.
1 belt.
2 face cloths.
1 comb.
3 handkerchiefs.
9 long-sleeve shirts.
1 nail brush.
4 pair pajamas.
6 polo shirts.
1 raincoat and hat.
1 pair rubbers.
3 pair shoes (1 dress, 1 school, 1 play).
1 pair sneakers.
11 pair socks.
2 suits (1 dress, (1 school).
1 sweat shirt.
1 sweater.
2 ties.
2 pair extra trousers (1 play, 1 school).
8 undershirts.
8 undershorts.

Besides controlling the amount and variety of clothing available to a child, the institution also restricts its use. Dress clothes (a best and second-best suit for boys and good quality dresses for girls) are worn only to religious services, to school, on city trips and other special occasions. At all other times play clothes (dungarees, polo shirts, etc.) are worn.

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[12] Clothing varies seasonally. Children do not retain in their lockers clothing which is not appropriate to the specific season.

The following table compares institutional clothing expenditures with those of low and middle income families. It should be remembered, however, that an institution can buy more clothes for its money than a private family, due to wholesale buying opportunities. It should also be remembered that the institution-provided wardrobe is often supplemented by the child's own family.

Table 5.—Annual clothing costs (new purchases) for pre-adolescent and adolescent children

	Boys			Girls		
	Minimum	Maximum	Mean	Minimum	Maximum	Mean
Institution under study	$40.08	$158.66	$73.26	$49.92	$139.92	$90.12
Low cost budget [1]	....	....	73.23	....	....	89.20
Moderate cost budget [2]	....	....	153.25	....	....	175.77

[1] Based on data from *Low-cost Clothing Budget*, Community Chest and Council of Hennepin County, Minn., February, 1954.

[2] Based on data from *Moderate-cost Clothing Budget*, Community Chest and Council of Hennepin County, April, 1953.

The above costs are for new clothing only. The table does not show laundry, repairs and cleaning, whether contracted for or provided by institutional staff. As may be noted in the table below, the costs of clothing maintenance are nearly equal to the costs of providing the apparel.

Table 6.—Provision and maintenance of clothing

Item		Cost in dollars		Percent of total cost of institutional operation
Clothing and personal laundry [1]				
Clothing room staff.				
Salaries	$2,015.52			
Insurance	82.01			
		2,097.53		
Wearing apparel		9,183.65		
Laundry service (exlusive of linens)		5,583.03		
			16,864.21	4.2

[1] Some of the personal laundry is a staff expenditure (i. e. laundry done for members of staff) but this was too difficult to isolate.

In addition to shelter, food and clothing, an institution must offer complementary services designed to insure the physical well-being of children, and to meet their developmental needs. In the institution studied, staff employed to safeguard children physically are engaged in household, watch duty and medical-dental services. Staff employed to help meet developmental needs are engaged in cottage, school and activity services. Services devoted to physical well-being are designated as complementary services A. Services used for developmental needs are designated as complementary services B.

Complementary services A (related to physical well-being)

Household staff

Primarily, the household staff (a supervisory housekeeper and eleven porters) is responsible for housekeeping in children's quarters. Each cottage has a maid who does most of the cleaning and is on duty half time during all week days. The housekeeping supervisor helps with interior decoration, in addition to carrying supervisory responsibilities.

Watchmen

Watchmen are considered part of the residential care staff, since they are employed solely to protect the children's quarters against fire and other hazards.

Medical-dental

This is the most substantial program devoted to the physical well-being of the children. Geared originally to meet the needs of 600 or more, it now serves less than 200. Few of the available hospital beds are used, and much of the space in the hospital building is now given over to other functions. The services consist of a medical clinic with hospitalization facilities for minor ailments; a dental clinic offering dental hygiene, surgery and orthodontia; and a bimonthly ophthalmology clinic. The full time medical-dental staff consists of two nurses and a dental hygienist. Two physicians and three dentists are employed on a part time basis.

There are infrequent occasions, as was noted earlier, when children whose behavior makes it impossible for them to remain in the cottages must be temporarily transferred to the hospital, because there is no other place for them to go.[13] For such children the residential functions of the institution are temporarily transferred from the cottage to the hospital.

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[13] Although medical and other institutional staff agree on the negative aspects of this procedure, it is used (generally for a very temporary period) to maintain relative equilibrium in the cottages.

Costs of providing complementary services A (protecting the physical well-being of children) are detailed below. The household staff costs the institution $2,646.16 per month (4.0 percent of institutional operation), watchmen cost $791.66 per month (1.2 percent), and medical-dental service costs $2,336.15 per month (3.5 percent of total cost of institutional operation).

Table 7.—Cost of complementary services A

Item		Cost in dollars		Percent of total cost of institutional operation
HOUSEHOLD STAFF (SUPERVISORY HOUSEKEEPER AND PORTERS)[1]				
Salaries		14,097.23		
Insurance		601.69		
Housing 6,000 cu. ft. (approx.)		404.40		
Meals 1629		773.77		
			15,877.09	4.0
WATCHMEN				
Salaries		4,091.01		
Insurance		180.26		
Housing 2,000 cu. ft. (approx.)		134.80		
Meals 724		343.90		
			4,749.97	1.2
MEDICAL DENTAL PROGRAM				
Housing 42,000 cu. ft. (approx.)		2,830.80		
Salaries	$9,293.01			
Insurance	298.11			
Workers' expenses	24.00			
Housing staff 8,000 cu. ft. (approx.)	539.20			
Meals 2172	1,031.70			
		11,186.02		
			14,016.82	3.5

---

[1] While household staff does, to some extent, service nearly all of the function related space in the institution, most of its time is spent in the servicing of children's quarters.

Complementary services B (related to developmental needs)

The three programs in the institution designed primarily to meet developmental needs are cottage life, school and activities.

Cottage parents

As is true of all cottage-type institutions, by far the largest part of a child's time in the institution is spent in his cottage. There he makes most of his contacts with other children and with institutional staff. Cottage parents are the most direct representatives of the institution to the child, closest to him physically, most accessible and most directly involved in his day-to-day life. It is not an overstatement to consider them the "hub of institutional life."

In the institution studied, during the period of the research, there were generally 30 to 34 cottage parents and one or two cottage parent supervisors employed at a given time. The supervisors were trained social workers with experience in casework and group work. Educational status of cottage parents ranged from high school graduate to Ph.D. Some were relatively recent arrivals in the United States and had been educated abroad. All were screened by the institution for ability to work with children. Beyond this the requirements for the position were broad. Staffing of cottage parent positions is as much a problem in this institution as it is elsewhere.[14]

The position of cottage parent does not hold out the inducement of advancement within the institutional hierarchy. Despite experience and performance, cottage parents cannot become caseworkers, psychiatrists, remedial teachers or even cottage parent supervisors. The work is hard and financial rewards not sufficient to enable the job to compete successfully in the labor market.

The duties of a cottage parent are many and varied. They involve supervision of group life in the cottage, individual attention to the needs of children, conferences with other staff members and some concern with the cottage as a physical plant.[15]

To illustrate, here are the activity patterns of individual cottage parents on duty both in an older girls cottage and in a boys cottage, as seen on a day selected at random. Such a random selection could obviously not represent the total activity the staff is engaged in in carrying out its function. Activities for the boys cottage are described in greater detail.

Older girls cottage (housing 14 children), Friday, September 23

1:00 p. m.	On duty
1:00– 2:20	Conference with member of activity staff
2:20– 3:00	Supervisory conference with cottage parents' supervisor
3:00– 3:25	Procurement of supplies
3:25– 3:45	Individual attention to child A
3:45– 4:00	Preparation of dinner [16]

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[14] One writer has expressed the problem thus: "Usually the hiring of houseparents is a complicated process, and very seldom do supply and demand coincide. Quite often institutions * * * fill vacancies with people who are available, rather than with people * * * wanted." (Morris F. Mayer: "Supervision of Houseparents," in *Institutional Services to Children*, New York: Child Welfare League of America, 1953, p. 5.

[15] Duties may vary among cottages, according to age, sex and personality of the children and, perhaps to an equal extent, the characteristics of cottage parents.

[16] Friday evening's, Saturday's, and Sunday's meals are served in the cottage. The meal is prepared in the main kitchen. Cottage parent may, however, do some additional preparation in the form of desserts, cake, etc.

4:00– 4:15	Individual attention to child B
4:15– 4:35	Check-in of laundry
4:35– 4:45	Individual attention to children C and D
4:45– 4:50	Individual attention to child E
4:50– 5:15	Preparation of dinner
5:15– 5:40	Sorting and labeling of socks
5:40– 5:50	Individual attention to child F
5:50– 7:15	Dinner with children and two guests
7:15– 7:25	Individual attention to child G
7:25– 7:40	Individual attention to children A and E
7:40– 7:50	Individual attention to child B
7:50–10:00	Party with one of boys cottages
10:00–10:15	Individual attention to children F and H
10:15–10:25	Individual attention to children I and J
10:25–11:00	Getting the girls ready for bed

Boys cottage (ages 10–14)

7:15 Cottage parent, who has risen somewhat earlier, enters the dormitories and individually wakes those boys who are not yet up. About half of the boys have been up for some time. Some have already dressed. Children wash, dress, make beds and carry out minor housekeeping assignments.

8:00 Two boys leave for the main dining room, where they will set the tables for the cottage. One child leaves for the medical clinic for special care.

8:20 Cottage parent (there is one on duty this morning; usually two are on duty) walks with the children to the dining room.

8:30 Morning meal is eaten after brief prayer. The meal is served "family style." Following the meal, children stack the dishes and one boy at each table remains to clean the table and chairs. His work is done in five minutes.

9:00 Children go to school on the grounds. They remain at school until noon.

12:00 Boys return to cottage from school. Cottage parent distributes mail. Some boys are washing up.

12:20 Noon meal (procedure similar to breakfast).

1:00 Children return to school. They remain at school until 3 o'clock.

3:00 Boys return to cottage. Change school clothes to play clothes. Most, but not all, remove spreads from their beds. Most have snacks (milk, bread, peanut butter, jam). Several boys withdraw money from the account they have in the cottage. Several go off to play an informal game, a few go out to tend their gardens, two have appointments with social service, and the remainder pour out onto the playfield in front of the cottage. The cottage parent is with them.

5:00 Children wash, prepare for and eat evening meal.

6:00 Children return to cottage and are checked for presence by houseparent. No apparent structure of activity in cottage at this time. Some boys are signing out for activities. (Woodshop, ceramics, dancing and library are available this evening.) Two boys are preparing snacks.

6:45 Many boys leave for activities. Several groups are playing in game room. TV is on. A number of boys involve cottage parent in individual conversation. Although this kind of individualized contact is frequent throughout the day, it is most noted at this time. Cottage parent claims this to be the most suitable time for it.

8:00 The boys who have left cottage are returning. Snacks are served. Several boys are showering. Diffused, unorganized activity.

9:00 Bedtime. Some delays, some boys are still in showers. Several boys are reading, a number are listening to radio. Lights go out about 9:15.

9:30 Cottage parent completes census sheet, picks up several pieces of stray clothing, a left-over game set and turns off TV set.

The above record shows some of the activity of cottage parents and their relationship to children. The cost of providing the service of cottage staff, including supervisory personnel, for the 6-month period January 1–June 30, 1955, was $65,800.86 (16.5 percent of the total cost of institutional operation). Monthly cost of cottage staff is $10,966.81. Included in such costs are, of course, salaries, insurance, maintenance and workers' expenses chargeable to all persons in this staff category.

Table 8.—Cottage staff costs

Item	Cost in dollars		Percent of total cost of institutional operation
Cottage parents:			
Salary	48,030.29		
Insurance	1,885.63		
Workers' expenses	82.19		
Housing 61,700 cu. ft. (approx.)	4,156.21		
Meals, 16,800 @ $.475	7,980.00		
		62,134.32	15.6
Supervisor of cottage parents:			
Salary, insurance, expenses	2,323.80		
Housing 10,000 cu. ft. (approx.)	674.00		
Food (family of 5)	668.76		
		3,666.56	.9

School

General education in the institution is provided through a grade school program operated on the grounds by a metropolitan board of education, or through high school facilities in a nearby town for which the town is reimbursed by the metropolitan board.

While the program of the grade school is similar to that of other city schools, its structure and function differ in several respects.

First, classes at the institution are smaller, consisting usually of 15 to 19 students as compared with 40 to 50 in the city schools.

Second, the program is more flexible than city programs, especially in the use of manual arts, shop and craft activities, to break up the academic day for children likely to be overtaxed or disturbed by continuous academic work.

The third, and by far the most important difference, is the general orientation of the academic program toward "teaching the child to live in the classroom." With such an orientation, the school tends to assume treatment functions. To the extent that these functions are implemented, the whole school becomes a partner in treatment, along with residential care and clinical programs.

Aside from providing quarters for the school (the cost of which has been included under housing) and supplying remedial education, the institutional budget does not provide for the cost of education.

Activity program.

Also designed to meet development needs of children is the program known as "activities." It provides staff, equipment and supplies for numerous organized group undertakings, including certain handicrafts, sports or membership clubs. Varied from time to time, activities usually cover a variety of interests, such as woodworking, ceramics, sewing and clay modeling; swimming, tumbling and football; scouting and stamp collecting. Religious education is also part of the activity program, with emphasis on a child's knowledge of his religious heritage and preparation for certain religious rites.

Activity personnel consists of a supervisor, who is a trained social group worker, and ten other staff members, some of whom are employed on a part time basis. They are specialists in their fields (athletics, music, sewing, etc.), who work under the direction of a group worker.

The activity program is designed to augment and complement the formal education program. During the school year, activities are offered late in the afternoon and early in the evening, giving children an alternative to remaining in the cottage. During the summer, when the formal school program is suspended, activities replace it. While during the academic year activity attendance is completely voluntary, summer attendance, in lieu of school, is required of all children. The summer activity program is designed to provide an out-of-cottage program as extensive in summer as the academic program is in winter.

Relative costs of the two programs—cottage life and activities—change markedly during the summer; for although the cottage staff remains stable, the activity staff is expanded by six to eight persons. The expansion is not reflected in the cost data below, which show only a 6-month budget.[17]

Cost of operating the activity program for the 6-month period January 1–June 30, 1955, includes staff salaries, maintenance costs, insurance, workers' expenses and costs of educational and recreational supplies and devices needed in the program. The total is $26,842.10

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[17] These data do not reflect the expanded cost of the summer activity program because it fell in the first half of the next fiscal year (July 1–December 31, 1955). To that extent they portray somewhat inaccurately the relative cost position of activities in the total institutional budget.

(6.8 percent of the total cost of institutional operation). Monthly cost is $4,473.68.

Table 9.—Cost of activity program

Item	Cost in dollars		Percent of total cost of institutional operation
Supervisor of activities:			
Salary, insurance, expenses	2,424.62		
Housing 9,000 cu. ft. (approx.)	606.60		
Food (family of 3)	442.38		
		3,473.60	0.9
Activity staff:			
Salaries	12,053.92		
Insurance	464.34		
Workers' expenses	44.32		
Housing 26,000 cu. ft. (approx)	1,752.40		
Meals 1856 @ $.475	885.88		
Food (2 fam., 6 pers.)	942.24		
		16,143.10	4.1
Educational and recreational supplies in budget	1,119.11		
Special budget	5,282.49		
		6,401.60	1.6
Outings and recreation		823.80	.2

General residential care expenditures

A small number of expenditures for residential care of children do not fall into the categories of food, clothing, shelter, cottage life and so on, but rather run across them. These items include transportation (largely for children) and motor vehicle supplies (a school bus, a station wagon and some trucks used mainly in the residential programs), allowances for children, and some minor miscellaneous expenses. Also among these items are the positions of assistant director and supervisor of children, which run across many if not all residential care services.

The assistant director, a trained social worker, is the administrator in charge of residential care, having direct supervisory responsibility for cottage life, medical-dental care, the activity program and the work of the supervisor of children. The supervisor of children serves as liaison between the children and the local outside community (schools, law officers, merchants, etc.).

Table 10.—General residential care expenditures

Item	Cost in dollars		Percent of total cost of institutional operation
Assistant director:			
Salary, insurance, expenses	2, 681. 17		
Housing 10,000 cu. ft. (approx.)	674. 00		
Food (family of 4)	582. 24		
		3, 937. 41	1. 0
Supervisor of children:			
Salary, insurance, expenses	2, 415. 96		
Housing 10,000 cu. ft. (approx.)	674. 00		
Food (family of 4)	582. 24		
		3, 672. 20	. 9
Transportation		1, 266. 28	. 3
Motor vehicle supplies		2, 852. 24	. 7
Pocket money allowances to children		1, 229. 00	. 3
Barber		267. 00	. 1
Sundries		270. 07	. 1

Adding the costs of assistant director, supervisor of children, and the miscellaneous items of expense mentioned earlier as crossing various residential care categories gives a total of $13,494.20, or 3.4 percent of the total cost of institutional operations. Monthly cost is $2,249.03.

In summary, the residential care program costs for a 6-month period, and their proportions of total cost of institutional operation, were:

		Percent
Housing (including cottages, school and activity housing)	$51, 473. 38	12. 9
Meals for children	46, 939. 50	11. 8
Children's clothing and its maintenance	16, 864. 21	4. 2
Household staff	15, 877. 09	4. 0
Watchmen	4, 749. 97	1. 2
Medical-dental service	14, 016. 82	3. 5
Cottage staff	65, 800. 88	16. 6
School (excluding space charged under housing) tax supported.		
Activity program	26, 842. 10	6. 8
General residential care expenditures	13, 494. 20	3. 4
Total residential care	256, 058. 15	64. 4

Characteristics of children and achievement of purposes

The differences between the orphanage of half a century ago and the present treatment institution lie not only in the kinds of services offered then and now, but also in the types and numbers of children in residence.

The population in the institution studied ranged from a low of 162 in January to a high of 195 in July. A majority, 63 percent, were boys. Eighty-five percent of the children were in the 10–15 year age group; 91 percent had I. Q. measurements of 75–124. Preadolescents and adolescents within the normal distribution of intelligence made up the greater part of the population.

Referral of the children to the institution resulted partly from physical disruption of the family, but largely from emotional failure within the family. In some instances, children came from homes where one or both parents had been hospitalized. Others came from families where a harmonious relationship between parent and child could no longer be sustained, or where a previous marginal adjustment had broken down under the stress of a particular crisis.

Emotional illness of the child in most instances contributed to reasons for referral: 21 percent of the children were classified as having behavior disorders, another 57 percent as neurotic, and a third group of 9 percent as either psychotic or on the verge of psychosis.

A population in which serious emotional disturbance exists either within the child himself or his family, or both, is relatively new to the institution.[18] To meet the needs of children under its care the institution that was once a home and school has increasingly become a treatment agency. Meeting needs of seriously disturbed children is an important factor of institutional cost.

The institution as a treatment agency

Today clinical services include social work, psychiatry, psychology and remedial education, all of which play decisive parts in processing a case through institutional residence. The agency through the intake department decides what children shall be admitted, and where within the agency they shall be allocated. When a child is allocated to the institution, the agency decides how the child should be cared for and when he should be discharged. Although there is considerable institutional emphasis on the importance of all services and the need for integrating them in the under-care program, major decisions affecting the treatment of a child are made by the clinical services—mainly, social work and psychiatry.

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[18] An agency statement of 1952 phrases it thus: "In the past our children came to us because of death in the family or separation of parents. Today we are faced primarily with the problem of the disturbed child who requires separation in order to be helped. As of this writing some 60 to 70 percent of our children have marked emotional problems."

Casework.

The function of social casework in the institution is described in a November 1952 statement of the staff, as follows:[19]

> Casework in the institution concerns itself with the child and parent following the intake period when the child comes into placement, is actually under care, and finally when he is in aftercare. In these special periods the primary task of casework is a dual and interrelated one of helping child and parent, each in their separate ways, to come to terms with separation so that they may be freer to make constructive use of placement, while at the same time helping them to reorganize their relations to one another, to strengthen the natural bond between them, so that reunion will be the more possible. In aftercare the task is to lend support to parent and child during the first months of reunion in order to help them to maintain it. Where reunion is not possible, then the task, similarly, is to help them to come to terms with this reality and to work with them toward a more permanent placement solution.

It is evident from this statement that casework service offers continuity from the beginning to the closing of the case, and contact between the child in the institution and his parents as well as with other important groups on the outside (courts, schools, other social agencies, etc.). Casework occupies a strategic and determining position in processing the entire case. In consultation with other services (primarily psychiatry and administration) casework determines timing, direction and intensity of specific activities—in fact, the disposition of the case. Social casework also has the sole responsibility for recording data on each case, which is a necessary tool in the making of decisions.

A description of how a case is processed through the institution will clearly reflect the above described crucial position of casework. The process starts when the client personally, or some person or agency acting in his behalf, approaches the intake unit of the parent agency.[20] The initial request is screened by a caseworker or casework supervisor, or both. If the services needed are included in the agency's functions, an intake study is begun.

As will be shown later, the extent and nature of intake service varies considerably among clients. Possible results of the intake study are, however, only three. First, service may be terminated with intake at the initiative of either the client or the intake department. Second, the client may be referred for additional service elsewhere. Third, the client may be "allocated" to one of the divisions of the agency.

We are concerned here only with those clients who receive service at intake and are subsequently allocated to the institution studied. In theory, the intake department may, if it wishes, allocate cases without prior consultation. In practice, however, when advisability of institutional placement is questioned, case records are sent to the institution "on consultation," and a decision on allocation is reached by mutual agreement.

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[19] All children in the institution and those being prepared for admission, plus many who have been recently discharged, are assigned to caseworkers. Though the amount of casework service received during a given period or in any phase of service may vary drastically among children, it is exceptional for a child not to receive any at all during a month's stay in the institution.

[20] The intake unit or intake department, as it is known in this agency, serves the institution under study, as well as a foster care department and a group residence department which includes several small group residences and an institution for mentally retarded children.

Following allocation, a caseworker from the institution is assigned to the family. He works with both child and parents until the time for admission to the institution is considered appropriate. During this period, called "pre-admission," an "allocation conference" is held, attended by the assistant director, the supervisor of cottage parents and the caseworker. At this conference the group is selected with which the child will live after admission.

Admission is a routine and generally brief event. The child is brought by his parents or guardian to the intake department offices, where the caseworker from the institution meets with the family, following which he and the child leave for the institution.

Immediately upon arrival, the child receives a general medical examination and some immunizations at the medical clinic. Then, following lunch, he is taken by the caseworker to the clothing room, and to the offices of the director, assistant director and supervisors of children, activities and cottage parents, to the school office and the social service office, and finally to his cottage. (Cottage parents will have been briefed previously about the child by their supervisor, and will usually have discussed the new child's arrival with the other children in the cottage.)

Admission is followed by a period of institutional residence, during which the various services play their parts in the treatment process. The child continues to be assigned to the caseworker who admitted him, or to another caseworker, who carries responsibility not only for treatment but also for coordination and pace of the child's treatment program.[21]

During this period of institutional residence and treatment the child may receive service from any or all of the personnel categories of the institution. He will certainly be served by his caseworker and cottage parents; he is very likely to participate in activities (99 percent of the children do so);[22] he is quite likely to receive some medical-dental service (91 percent); he may be assigned to psychiatry (23 percent); remedial teaching (36 percent); psychology (16 percent); and he may receive some service from administrative personnel (79 percent). During this period also, the caseworker maintains active contact with the child's parents or those relatives directly related to the case.

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[21] The extent to which such coordination actually is carried out varies considerably among cases and workers.

[22] These percentages indicate the approximate proportion of all children in the institution who receive services of a given personnel category during a month. The data are for the month of April 1955.

The next phase in the casework process, discharge from the institution, may occur for one of three reasons:

1. The institution or the parents or both may decide that the institution is not suited to the child's needs.
2. The institution may decide that service to the child has achieved the maximum expectations.
3. The child's characteristics (age, symptomatology, family structure) may have changed so that it is no longer within the province of the institution to serve him.

The decision to discharge a child is made by the casework service, occasionally with psychiatric consultation, often with administrative consultation. Children may be discharged home or to another department of the agency or to another agency. As with admission, a child is not discharged at the institution, but accompanies the worker to the intake department office, where the parents or representatives of another department or agency receive custody of him.

Approximately 38 percent of the children discharged from the institution remain in aftercare.[23] Aftercare service usually consists of occasional interviews held by the caseworker with the child or his parents in the offices of the intake department.

The casework staff, involved in all the above processes, consists of an administrative supervisor, two casework supervisors (one of whom carries a small caseload), seven caseworkers, and usually two or three graduate students, supervised by senior caseworkers. With an average population of 190 children in the institution and the additional responsibilities of some pre-admission and aftercare cases, caseloads tend to range between 22 and 30.[24]

Activity patterns of caseworkers are likely to vary with the number and characteristics of the children assigned to them, as well as with the experience and skill of the worker. Here is a record of one day's activity of a worker with several years' experience and a caseload of 26 children. This record was chosen at random and is not intended to represent the full range of activities of the worker.

Tuesday, October 4

9:25	On duty [25]
9:25– 9:30	Miscellaneous activity (opening mail, checking calendar)
9:30– 9:40	Telephone call relative to children A and B (brothers)
9:40– 9:50	Telephone call relative to child C
9:50–10:05	Interview with child D
10:05–10:30	Interview with child E
10:30–11:00	Interview with child F
11:00–11:30	Interview with child G
11:30–12:00	Interview with child H

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[23] During the period January 1–October 31, 1955, 53 children were discharged. Of these, 20, or 37.7 percent, remained in aftercare.

[24] Matters of caseload are under constant review within the agency.

[25] Times of arrival and departure are determined by train schedules. Caseworkers commute to the institution from the metropolitan community.

1:00– 1:30	Interview with child I
1:30– 2:10	Interview with child J
2:10– 2:30	Miscellaneous activity (desk work) relative to children A and B
2:30– 2:45	Miscellaneous activity relative to total caseload
2:45– 3:00	Correspondence regarding children A and B
3:00– 4:00	Interview with child C
4:00– 4:05	Telephone administrative staff regarding child C
4:05– 4:15	No record of activity
4:15– 4:25	Miscellaneous activity relative to child E
4:30	Off duty

Clerical service

Clerical work, a necessary adjunct to treatment services, is done by a small department of four persons. Although available to all of the clinical staff (that is, psychiatry, psychology, remedial education and social work), clerical time is consumed largely by the casework service, either in transcription of records and reports or in communication with parents and agencies. Cost of clerical work for the treatment program will therefore be charged wholly, if somewhat inaccurately, to casework.

The casework program with its auxiliary clerical service cost $31,357.49 during a 6-month period. This constitutes 7.9 percent of the cost of institutional operation, or two-thirds as much as housing or food; half as much as cottage staff; and approximately twice as much as household staff or medical-dental service. This key institutional service, offered by trained and experienced staff, with caseloads that would still be the envy of most agencies, costs one-third more than the household staff and watchmen combined.

Table 11.—Cost of casework and auxiliary clerical service

Item	Cost in dollars		Percent of total cost of institutional operation
Casework service:			
Housing 24,000 cu. ft. (approx.)	1, 617. 60		
Salaries	22, 041. 99		
Insurance	689. 15		
Workers' expenses	1, 721. 60		
		26, 070. 34	6. 6
Clerical service:			
Housing 6,000 cu. ft. (approx.)	404, 40		
Salaries	4, 719. 84		
Insurance	162. 91		
		5, 287. 15	1. 3

Psychiatric service.

During the period studied, more than a third of all children in the institution were seen by psychiatrists for either treatment, diagnostic or consultative purposes. Although it is the caseworker's and casework supervisor's function to determine *who* will be referred to psychiatry, it is the psychiatrist who decides *whether* and *how* the child should receive psychiatric treatment. When a case is referred to a psychiatrist, responsibility for its over-all direction remains with casework, but decisions about its management usually follow psychiatric recommendations closely.

The extent of psychiatric service required by cases assigned to psychiatrists can perhaps best be assessed from the ratio of children to hours of psychiatric time. During the study period the institution had at its disposal on the average 75 hours of psychiatric time per week, with a mean of 33 children assigned,[26] resulting in 2.3 hours per child per week.

Following is the activity pattern of one psychiatrist, employed for twenty hours per week, with a caseload of eleven on the date of recording. Note that this is a day selected at random and is not intended to represent the full range of activity of the psychiatrist.

Monday, October 10

9:30–10:00	Interview with child A
10:30–11:10	Interview with child B
11:10–11:20	Interview with child C
11:20–11:25	Recording material relative to child A
11:25–12:10	Interview with child D
1:00– 1:10	Recording material regarding child A
1:10– 1:20	Conference with social worker relative to child B
1:20– 3:15	Recording material regarding child A
3:15– 3:30	Interview with child A
3:30– 4:00	Recording material regarding child A
4:00– 4:35	Interview with child E
4:35– 4:40	Miscellaneous activity relative to total caseload
4:40– 4:45	Recording material regarding child A

Cost of psychiatric service during the 6-month period January 1–June 30, 1955, was $11,706.29, or 2.9 percent of the total cost of institutional operation. This constitutes somewhat less than half the cost of casework service, but applies to only about one third as many children and is more costly per child for those children who receive it.

Psychology and remedial education

The treatment-allied services of psychology and remedial education involve a relatively small proportion of the institutional population. During a given month of the study period 36.0 percent of the children

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[26] Data as of June 1955.

Table 12.—Cost of psychiatric service

Item	Cost in dollars		Percent of total cost of institutional operation
Psychiatry:			
Housing 6,000 cu. ft. (approx.)	404.40		
Salaries	9,633.30		
Insurance	206.13		
Workers' expenses	273.62		
Housing 9,000 cu. ft. (approx.)	606.60		
Food (family of 4)	582.24		
		11,706.29	2.9

were actively involved in remedial education and 16.0 percent [27] in the psychological program. There are remedial aspects to both services, but while psychological services are available to all children, remedial education is almost completely confined to grade school children.

The primary function of the psychologist is to prepare, administer and interpret psychological tests as an aid to social work and psychiatry in determining the direction the treatment of a case should take. The psychologist also functions as a remedial teacher and,

Table 13.—Cost of remedial education and psychology

Item	Cost in dollars		Percent of total cost of institutional operation
Remedial teaching:			
Housing 5,000 cu. ft. (approx.)	337.00		
Salaries	5,790.53		
Insurance	167.44		
Workers' expenses	203.40		
		6,498.37	1.6
Psychology:			
Housing 2,000 cu. ft. (approx.)	134.80		
Salary	2,360.40		
Insurance	78.12		
Workers' expenses	137.15		
		2,710.47	.7

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[27] Data for April 1955.

along with other remedial education staff, carries out this aspect of treatment.[28]

The 6-month cost of providing these two services, including staff salaries, office space, insurance and expenses, is $9,148.84, or 2.3 percent of the total cost of institutional operation.

Intake services

Intake department services, although located outside the institution in the parent agency, are as much a part of the institution's treatment program as the services of its own caseworkers, psychiatrists, psychologists or remedial teachers. Conducted primarily by the casework staff, intake often uses psychiatric and psychological services and, in some instances, constitutes a substantial portion of the entire cost of case processing.

In the budget structure of the agency, intake costs are not, however, isolated from the costs of other centrally organized services. Consequently, there is no way to distinguish intake cost for any of the individual placement units. Procedures developed for allocating overall administrative and intake costs to the institution are described subsequently. Using these procedures, the 6-month cost of intake for the institution was found to be $17,664.96, or 4.4 percent of the total cost of institutional operation.

Recapitulation of costs of total treatment program

The institutional treatment program is centered in the four services of psychiatry, casework, psychology and remedial education, along with auxiliary clerical assistance. Related are the intake services offered by the central unit of the parent agency. The total (6-month) cost of these two programs, one internal and the other external, is $69,937.58, or 17.6 percent of the total cost of institutional operation.

Institutional administration

Institutional services are offered within the framework of two administrative structures, that of the institution itself and that of the overall administration of the parent agency.

The internal administration (as may be seen from chart II) consists of the director and his office staff. The director coordinates the three departments of the institution: business management, residence, and treatment. The cost of internal administration is $20,042.19 for a 6-month period, constituting 5.0 percent of the total cost of institutional operation.

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[28] Since this was written, an educational psychologist has been added. His function is primarily remedial education.

Chart II.

FORMAL ORGANIZATION

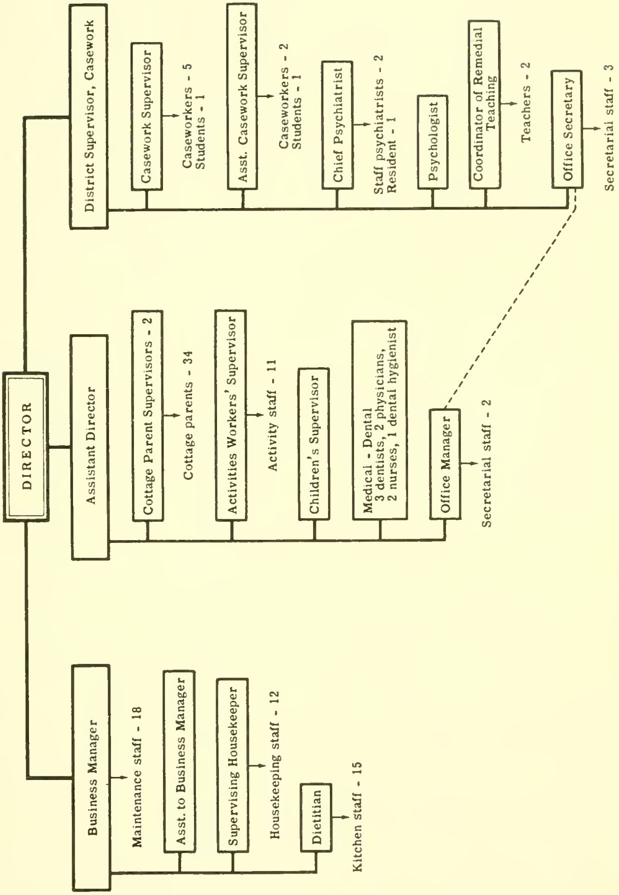

Table 14.—Cost of internal administration

Item	Cost in dollars		Percent of total cost of institutional operation
Institutional administration:			
Housing (offices) 18,000 cu. ft. (approx.)		1, 212. 20	
Executive:			
Salary	4, 125. 00		
Insurance	114. 96		
Expenses	150. 00		
Housing (personal) 38,000 cu. ft. (approx.)	2, 561. 20		
Food (family of 2)	357. 84		
Maid	1, 260. 84		
		8, 569. 84	
Clerical staff			
Salary	5, 901. 24		
Insurance	201. 39		
		6, 102. 63	
Printing		324. 57	
Postage		300. 64	
Stationery and office supplies		273. 42	
Office equipment		1, 282. 71	
Telephone and telegraph		1, 871. 88	
Magazines and newspapers		104. 30	
Total		20, 042. 19	5.0

Central administration and intake

In an institution that is part of a multiple-service agency, as is the one under study, certain costs of operation are traditionally kept outside of its line budget. These are usually assembled in an independent budget labeled "central administration" or some equivalent term.

The cost of central administration cannot, however, be omitted from the institutional service budget, for two primary and reciprocal reasons. First, the institution would be unable to provide service unless the functions of central administration were performed *somewhere*, internally or externally. Second, the costs of central administration have no meaning in a vacuum. They acquire meaning only when related to the supply of services to clients in the settings under central administration.

How can central administrative costs be included in the service budget? In the setting under study, two completely distinct central administrative functions can be identified. One, as previously indicated, is intake, which determines the applicability of agency services to clients, and then helps them start using the appropriate service. The second is providing certain enabling services to the various divisions. These services include formulation of agency policy, recruitment and employment of personnel, receipt and disbursement of funds, purchasing, public relations, and administrative research.

Both intake and enabling services are directed by the same top administrative staff. Below the top administrative level there is some small staff interchange between them, but, on the whole, the services can be considered as distinct. Procedures for charging their operating costs to the several service divisions need not be identical and in this study were not so considered.

Intake department costs chargeable to divisions of the parent agency were determined on the basis of proportions of cases processed by intake that resulted in referral to one of the service divisions. During the period January 1–June 30, 1955, for example, intake processed and referred 135 cases. Of these, 46 (or 34 percent) were referred to the institution under study, and the institution is thus charged with that proportion of the cost of the intake department.[29]

The central administration services other than intake do not, however, lend themselves to clear-cut unit counts. Therefore, in order to determine costs chargeable to divisions, the time spent in their behalf by central administration staff was determined by a time study.[30] Time allocation and salary were then used to determine charges to the divisions.

The salaries of central staff are seen not only as an important indication of cost but also as an indication of the extent to which the central administration can provide resources such as personnel, space and certain items of supply.

Time records were kept by 18 key persons (executive, assistants, department heads, etc.) daily for a full work week every fifth week throughout the study. The function of the time study was merely to distribute the work time of the staff among intake (to which some time is given, as previously indicated), the institution, and the other service divisions.[31] When the time distributions were considered in conjunction with the salaries of the recording staff and allocated to the service divisions, the result was as follows:

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[29] A separate check of this ratio was obtained by following up screening cases.

[30] It is sometimes assumed that central administrative costs relate to the budgets of the divisions or to the number of children they have under care. Neither of these assumptions can be substantiated as to accuracy, and neither seems warranted. If the time study procedure accounts for a substantial proportion of staff time, it seems most likely to reflect actual administrative services (costs) to the divisions. Such an assumption seems especially feasible if the final ratios of administrative charges to the divisions are to be weighted by the salary of each person keeping a record.

[31] For copies of the recording sheet and instructions, see appendix.

	Percent
Intake department	15.7
Institution under study	33.3
Other divisions	51.0

With these data and those on intake allocations, it is possible to proceed with distribution of central administration costs to the service divisions.

Central administration expenditures for the 6-month period January 1–June 30, 1955, are as follows:

Salaries and wages	$110, 515. 90
Maintenance	5, 432. 41
Administration expenses	32, 651. 14
Institutional operations	4, 229. 13
Fixed charges	29, 285. 78
	182, 114. 36

Of this total sum, the costs of operating the intake department that may be directly identified as items in the line budget are:

Housing [32]	$2, 889. 52
Salaries, insurance and expenses (social workers)	18, 236. 82
Salaries estimated (clerical)	5, 000. 00
Salary (psychiatrist)	1, 028. 00
Microfilm	380. 00
	27, 534. 34

Remaining central administration costs of $154,580.02 to be allocated in accordance with time study data are as follows:

	Percent	
To intake	15.7	$24, 269. 06
To institution	33.3	51, 475. 14
To other service divisions	51.0	78, 835. 82
	100.0	154, 580. 02

The full cost of the intake department is therefore $27,534.34 plus $24,269.06, or a total of $51,803.40, with 34.1 percent ($17,664.96) of the total chargeable to the institution. Also chargeable—as an administrative expense—is $51,475.14, or 33.3 percent of the cost of operating the central administrative services.[33]

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[32] Operation of building, housing central administration and intake department:

Maintenance of building	$5, 432. 41	
Household supplies	113. 70	
Household maintenance (janitorial)	3, 210. 00	$8, 756. 11

Cost of space to be apportioned in ratio to amount of space occupied by intake, which is one third, and by central administration, which is two thirds.

[33] The entire service budget presented above is based on the actual line budgets of the institution and its parent agency. For the actual budgetary categories, see appendix.

Summary

The traditional *line* budget of an institution, essentially a *grouping by categories of expenditure,* is not suited to performance budgeting. To be so employed, it must be translated into a *service* budget, a *grouping of expenditures by services purchased.*

Three primary services are distinguished in the institution: residential care—including shelter, food, cottage parents, activity staff, medical-dental services, etc.; treatment program—including social work, psychiatry, psychology, remedial education and attendant clerical personnel; and administration—including internal administration and external services provided by the central administration of the parent agency.

Individual costs for the three services and the share of each in the total cost of institutional care are as follows:

		Percent
Residential care (food, shelter, clothing, cottage life, activity program, medical program)	$256, 058. 15	64. 4
Treatment services, (casework, psychiatry, psychology, remedial education and intake)	69, 937. 58	17. 6
Administration (institutional and central)	71, 517. 33	18. 0
Total cost of institutional care (January 1–June 30, 1955)	397, 513. 06	100. 0

Relation of service budget to line budget and controller's report

Since the service budget is based entirely on the line budget plus any extra-budgetary expense for service which may be incurred, the totals of the two budgets should balance.

The controller's report of expenditures for the half year under study, were it compiled, would include:

Total expenditures budgeted for the institution [34]	$317, 910. 65
Expenditures from special budget A [35]	15, 039. 00
Expenditures from special budget B	8, 087. 00
Expenditures from Birthday Fund	159. 00
Extra-budgetary expenditures	1, 492. 00
Total	342, 687. 65

The service budget for the institution includes:	
Total cost of *care in the institution* (exclusive of central administration and intake)	328, 372. 96
Extra-care costs [36]	14, 408. 06
Total service budget	342, 781. 02

The discrepancy of approximately $100 results from rounding errors and a probable slight overstatement of extra-care costs.

[34] See the line budget items in appendix.

[35] The three special funds (budgets A and B and the Birthday Fund) are maintained by service orgainzations and used for specific purposes. Their primary contribution is to the activity program, both for personnel and supplies.

[36] Includes taxes paid for a period not covered by the budget, housing and food not allocated to in-care staff categories, and an unexpended reserve fund.

II. Institutional Costs and the Achievement of Secondary Purposes

As previously indicated, secondary purposes of the institution studied are personnel training and some research production. Both must be taken into consideration, since they are likely to affect institutional costs.

Training programs for social workers and psychiatrists are used to fulfill the personnel training purpose. During the study, the institution had in training, under supervision of its own staff, five student social workers and two resident psychiatrists. The trainees came from qualified teaching centers which periodically review and approve the training program.[37]

While the institution did not, at the time of the study, offer any inservice training program for staff, there was continuous encouragement, especially of cottage personnel, to attend outside training sessions and seminars relevant to their work. In many instances the institution paid tuition costs of such seminars and extended other privileges to staff members interested in additional training.

The situation regarding research is somewhat different.

This purpose has not been fully developed. The institution has, through a number of its staff members, contributed to social work and psychiatric literature. Many of the contributions are of a high caliber and may have entailed research by their respective authors. In such cases, the work would be done with the institutional consent and possibly even some support. However, there is no organized framework for research and no formal research program.

III. Non-Budgetary Items Affecting Cost

It should be noted that remodeling a line budget into a service budget may fail to reveal some factors affecting cost which have no lines, because they are not in themselves an expense even though they may cause expenditure. These factors may be called the intangibles in the budgetary picture. There are several different kinds, related to institutional purposes, characteristics of children and staff, case processing procedures, staff relationships and community-agency relationships. An exhaustive review of these intangibles is outside the province of this study, but these certainly are factors that an institution should consider in appraising its costs. Since these intangible factors are many and varied, and since they are not specifically related to the cost of care at any time in this report, we have felt at liberty to include examples found in other institutions. The examples that follow, then, do not necessarily apply to the setting studied. They may apply in other institutions where their presence affects the cost of care.

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[37] Cost of training social work students, as it is reflected in the cost of the cases assigned to them, is discussed in a later chapter.

Intra-Staff Communication

Although there are times when some information about aspects of institutional costs (salaries, for example), staff reactions to children, and factual statements about children, may require restriction, an institution must recognize that good communication and coordination are vital to the achievement of institutional purposes. If communication is blocked, residential care staff or activity staff or medical and dental personnel, for example, cannot get from the clinical staff the information needed in order to work intelligently with children. Therefore, existence or absence of adequate means of communication between various categories of staff is likely to affect achievement of institutional goals and the cost of institutional operation.

In most institutions there is general recognition that good communication and coordination are vital to treatment. Usually, the concept of the institutional program conveyed by various members of a staff is one of coordinated activity. The assumption upon which the program is based is that all members of the staff who deal with children have sufficient information about the children to be aware of treatment objectives and gross treatment patterns.

The first prerequisite to coordinated action is communication. In many institutions some individuals and categories of staff are "on the sidelines" of communication, so to speak, while others are heavily "in the midst of things." Not infrequently the clinical staff is isolated from the remainder of the institutional personnel.

However, what is usually more important than the over-all contact pattern of staff is the selectiveness of individual contacts. In one institution, for example, an activity worker is likely to have contact with a caseworker less often than once every 2 weeks; a cottage parent is likely to communicate with a caseworker about as frequently; and the nurse's or dental hygienist's contact with a caseworker is also less than once every 2 weeks.

Under these circumstances, many who possess clinical information are likely to be out of contact with potential users of such information, such as cottage parents, activity staff, medical and dental personnel.

But increased intrastaff communication evolves only in time. There are three reasons why the process is slow. First, restrictions on information, such as mentioned in the beginning of the discussion on communication, are common to most institutions. Many are necessary. Some are useful.

Secondly, further restriction is necessitated by possible "weak links" in the staff structure. This is true, despite the general agreement that it is necessary to provide

> * * * for continuous communication among all members of an institution staff, and also [for an understanding of] the importance of careful evaluation of all staff members who want to work with children in an institution both to insure that they are psychologically healthy and that *necessary information about the children can be shared with them.* [38]

Thirdly, the prestige structure of an institution contains certain barriers to communication. Three major prestige groups may be singled out among staffs in treatment institutions: those staff members who treat, those who supervise group activity, and those who maintain the institution. The first group usually consists of psychiatrists, social workers, psychologists; the second group includes cottage parents, activity workers and occasionally some teachers. (The teacher functions somewhere between residential care and treatment.) The third group includes household, kitchen and maintenance staff.

In some institutions members of each of the three groups tend to stick together. Dining room behavior in one institution studied by the League is an illustration. Although staff dine simultaneously in the same room, with food served cafeteria style and many tables to choose from, members of a group invariably sat together, often with considerable discomfort because the table was too small to accommodate the entire group. When individual members of two different groups had an occasional luncheon conference, they sat apart from both groups, presumably for comfort and privacy. However, the habit incidentally preserved the isolation between the groups.

The degree to which clinical data are available to staff categories may relate closely to the prestige of these categories. Treatment staff usually have access to all records on the individual child and to all conferences where treatment plans are formulated. Group care staff members often have no access to records, but may obtain information about individual children from the appropriate caseworker or from their own supervisor. Maintenance personnel usually have no access to any information about individual children, except what they may acquire by chance.

While barriers to communication and program may probably be found in all settings, there are also, of course, many instances of good communication and excellent coordination. Their prevalence makes them less obvious than the barriers, and also more difficult to describe, since they are so much the essence of program. The existence or absence of communication channels between the various categories of staff, whether because of status structure, or of the operating philosophy and the administrative structure it produces, or as the result of historical accident, is likely to affect the nature of an institution and the cost of its operation.

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[38] Helen R. Hagan: *The Institution as a Casework Agency*, New York: Child Welfare League of America, 1954, p. 15 (italics are the author's).

Institutional versus individual needs

Unless the primary purpose of an institution is always clear to board, administration, and all categories of staff, some staff members will be frustrated in their activity and some children will be improperly (and therefore wastefully) served. Lack of clear interpretation of purpose may be the result of inadequate means of communication, or it may be that, however clearly interpreted, institutional purpose is simply not accepted by some individuals because their needs conflict with those of the children served by the institution. This conflict may exist at staff, board or public levels. It may not always be possible, or even desirable, to avoid employing staff or involving other individuals whose needs do not coincide with the institutional purposes. However, it should be recognized that when these differences occur they may result in additional strains on the program, which, in turn, can affect cost by using staff time or facilities uneconomically. Here are some examples.

The first is an institution whose activity program includes raising poultry. Ideally, the institution is raising children—not chickens. The administration is, therefore, not deeply concerned with the economic losses, since it regards poultry raising as a learning project for children, not a business venture. The farm instructor, on the other hand, regards the project as a business venture. Knowing that it is unprofitable from an economic standpoint, he complains that the administration does not understand his problems, and involves the business manager in what is supposed to be a treatment program far more deeply than the manager is involved in any other aspect of the treatment program.

Analyzing this situation briefly, it is apparent that:

a The overall purpose of the institution is not universally reflected in its operations.

b Even though an operation is set up to further achievement of institutional purposes, the operation may be diverted by the needs of an individual staff member.

c Such diversion is more likely where the same situation carries a different meaning within the institution than it does within the community at large.

d When this happens, institutional purposes and the needs of the individual are both compromised. Neither the needs of the farm instructor nor of administration (representing purposes, at least in theory) are fully met; but if the situation is tolerable, the activity and its cost continue.

Other examples to be found in institutions where needs of board and staff, or other groups exercising authority over the institution, interfere with program functioning and increase costs are:

1 A school where, to some board members and staff, a beautiful plant was more important than the emotional health of children. Since the children were disturbed, they were destructive, and needed to be permitted to destroy in certain situations before they could want to learn to be constructive. An expensive compromise between needs of children and adults was reached. Additional maintenance workers were employed to repair the damage as fast as the children created it.

2 The farming program of this school was traditional. The board felt it was giving the children good training for a trade. But only two children went into agriculture in many years. Nevertheless, the program was maintained at considerable cost, with the expenditure unrelated to achievement of the institutional purpose of child development.

3 Another school had a fine cornfield and strawberry patch. Being a State school and subject to State agricultural laws, it could not sell the picked corn and berries below a price set by the State. The school's budget, also State determined, did not permit the school to buy the produce the boys raised. Therefore the boys started stealing it, and paid guards had to be assigned to watch the picked produce, until a wise director gave orders to let the boys loose in small groups in the unpicked cornfield and strawberry patch!

4 Another treatment school used boys to stoke furnaces. Without regard to treatment needs, the board felt the boys should work at "something basic" in the school where they lived. There was much wastage of fuel, and frequent heat failures. Assigned to the central powerhouse without regard to treatment needs or vocational interests, the boys became adept in creating interference with the heating system. When the institution discontinued the system and installed automatic oil heat, it saved $20,000 per year.

Another situation in which needs of individuals are pitted against institutional requirements is seen in the universal problem of cottage staff. Cottage parents are expected to contribute a great deal of their time and of themselves to the needs of children in their cottage. However, their salary is low,[39] as is their status, and they have practically no chance for advancement in institutional ranks. By sacrifice and excellence in performance, cottage parents become good cottage parents, but they cannot become cottage parent supervisors, caseworkers, psychiatrists or institutional administrators. The motivation for becoming a cottage parent, therefore, must lie in the special values the position may hold for certain individuals.

For cottage parents observed in some institutions, the position seems to have four different values. For some, the value is temporary employment requiring no special skills. These are the job-transient individuals for whom the position is a bridge between school and school, school and work, or work and work. For a second group, the position provides an opportunity to engage in a sideline of great interest: art, education or some hobby important to them.

In a third group are those for whom the position is essentially a last resort. These are people without specific training, or else people who have been unable to get ahead in their occupations and professions. They are the disadvantaged in the labor market—with relatively little choice of employment. For them the position is a "haven of refuge in a cruel world."

In a fourth group are those individuals who became cottage parents for the financial and emotional rewards of the occupation. They could choose another job with reasonable expectation of success, but they *prefer* this position. It interests and challenges them, offers some financial security and considerable emotional satisfaction.

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[39] National salaries of cottage parents receiving maintenance ranged from $70 to $310, with a mean of $178, during the month of December 1954. (National salary data from *Salary Trends: A Report Based on Salary Practices in CWLA Member Agencies as of December 1954*, New York: Child Welfare League of America, May 1956.)

The first and fourth groups come to institutions to contribute and receive. While meeting their own needs, they do not push aside the demands of the children. The second and third groups are often overwhelmed by their own interests or problems. In the extreme situation, it is difficult to determine whether they function in the institution as the helpers or the helped.

Community attitude and cost of care

Without community acceptance and support, an institution cannot continue to exist. Sensitivity to community opinion is reflected in numerous official and unofficial actions of institutional boards and staff, which doubtless have a bearing upon the cost of care, even though the actions taken are not explicitly apparent in the institutional budget.

Agencies operating with the help of public funds are responsible to the public and must be exposed to community scrutiny. The mere consciousness of public trust in the institution's capacity to deal wisely with children and funds is doubtless a factor in cost of operation.

By and large, this awareness may be expected to lead to the best use of resources. However, when either agency or public becomes hypersensitive, the relationship between them may deteriorate, causing a considerable effort on the part of the agency to present to the community a picture more favorable than the real circumstances warrant. This effort, too, can cause expense.

One example of agency vulnerability to community criticism may be seen in the utilization of physical space. In some institutions, the plants were originally constructed to accommodate several hundred children. However, present intake policy, in line with available treatment facilities, has set population limits much lower. As a result, there appears to be surplus space. At a time when treatment facilities for children are in high demand, the agencies are constantly asked: "What about all that unused space? Why can't you take more children?" The question shows lack of understanding that mere *space* cannot be equated with *treatment facilities.*

One kind of space utilization, other than for children in treatment, is as staff housing. The need for a small number of staff to live on the grounds (cottage parents, for example) is obvious. The residence of some other staff may be defended on the basis of local housing scarcity and financial savings to the institution, or the possible inducement of housing in procuring and holding staff. Much of staff housing, however, cannot be justified on the basis of program requirements. In many institutions, once established to serve double the number of children being treated today or more, obsolete housing may be converted for uses not essential, although expensive to the institution. Filling space becomes a defense against community pressures to accept more children than the institution can effectively serve.

Another example of institution-community relationship which can affect cost of care comes from an institution which was unwilling to let neighboring communities know when children ran away. The policy of secrecy prohibited prompt, or sometimes any, notification to local police when children were missing. Not until runaways reached a metropolitan center, where they were much harder to locate, were police usually involved, and these were members of a metropolitan force some 25 miles distant. The result was that the children were away from the institution longer than if cooperation had been enlisted from nearby police. Treatment was interrupted, necessitating increased "catch-up" work by staff.

When the institution changed management, the policy of secrecy was abolished. There is now immediate notification of local police who cooperate fully with the institution. The result has been a substantial decrease in the number of children running away. The decrease in number of runaways is probably due not only to the effect of police cooperation, but also to an improved program, to which local communities have contributed money, resources, and volunteer effort since the lifting of the institutional curtain.

Summary

Aside from the tangibles in institutional service budgets (for example, cost of housing, meals, psychiatry, cottage staff, etc.), there are numerous intangibles that also affect the cost of care. Included are staff relationships as they affect means of communication, staff, board and public views on institutional function and the relationship between institution and community. While presumed to relate to cost, these intangibles have not been comprehensively analyzed in this study. Examples from several institutions have been given to provide additional perspective against which the cost of care and treatment within an institution may be scrutinized.

C. MAGNITUDE, STABILITY AND PREDICTIVE ABILITY OF WORK UNIT DATA

The function of a time study in performance budgeting is to show how much time is invested by each category of staff for every type of unit being completed in the service pattern of the agency. Data gathered in the time study may be applied to the appropriate work units or activity units or even to the extensive service units. However, since the most crucial units of this study are the work units, the first application of time data will be made to them.

Such time data may be considered from a number of points of view. In this section consideration will be given to points at which the data tend to cluster, the extent to which they scatter, and objective tests of their usefulness in prediction, including tests to show whether errors in prediction result mainly from laws of chance and can therefore be expected to be repetitive within the operation of those laws.

I. Magnitude of Work Units

Using the time study, each of the nine work units previously described may be evaluated in time (minutes) and in cost (dollars). For four of these units—institutional adjustment, life adjustment, discharge and aftercare—extensive duration required a method of subdivision. They have therefore been broken down into monthly intervals designated as subunits.

Among ways to describe time and money investments in the several work units, the mean (frequently called the average) appears to be the most practical. Its advantages are numerous. It is commonly used, easily computed, algebraically meaningful. Its primary disadvantage is high sensitivity to extremes. As a result of this sensitivity, the mean is not always a fair measure of a group of units. To enlarge the description, we have included medians in all the time values for each work unit.[1] (The median is that point above which half the data fall, and below which the other half fall when data are arranged in order of size.)

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[1] Also, in order to indicate the nature of the distribution in which the mean is located (i. e., its shape and range), values of the 1st, 25th, 75th and 100th percentiles are given. The cost of each work unit therefore is given in terms of the mean, the range and the first, second and third quartile. (See tables in appendix.)

It should be noted that costs in this chapter refer always to the costs of the nine categories of personnel keeping time records, and not to total cost of care. Cost of these services is approximately 40 percent of the total institutional budget.

Work unit 0—screening

Screening *begins* when the initial request for service reaches a social worker in the intake department. It *ends* with the formal assignment of the case to a specific worker, or with referral to another agency, or rejection or withdrawal of the case. Screening involves the client in the first exploratory steps necessary to ascertain whether the agency offers the services he desires and needs. Screening requires matching agency potential with client need—a job done by a social worker from the agency.

As might be anticipated in such exploration, there is a considerable loss of clientele throughout the work unit, predominantly in the early phases of the service. While the mean number of minutes required for the completion of a screening is 23, the median number is 15 and the third quartile (75th percentile) is 25 minutes.

These and additional data (reflected in table 67, appendix) indicate that the mean is strongly affected by a few heavy investments in screening. Three-quarters of the screenings result in a rapid decision which does not involve an investment of more than 25 minutes or a cost of more than $1.30. But many decisions after screening result in discontinuation of service, rather than in intake or admission. During the period studied,[2] 476 screenings were completed, and only about one-fourth of these became intake cases. These cases were further reduced by drop-outs, so that within 9 months following the screening period only about 7.5 percent of all cases screened reached the institution studied or other service departments of the parent agency.

While the cost of screening must be charged to the cases ultimately being admitted and receiving care, nevertheless the often overlooked value and cost of service to withdrawn and rejected cases should be noted as a service to the community. In this instance, the intake department establishes contact with some 2,000 cases per year, most of which are never reflected in agency service statistics.

Work unit 1—intake

Intake *begins* immediately following the formal assignment of the case to a worker. It *ends* with the initial referral of the case to the institution or another division of the central agency, or with referral to another unrelated agency. If referral is not indicated, some other appropriate disposition of the case is made by the intake department.

Intake involves a decision by the agency and the client as to what service will best meet his needs. Unlike screening, which is a relatively short term, technically uncomplicated operation involving only a single category of staff, intake may extend over a long period of time [3] and require several categories of staff for completion. It should be noted that when various categories of staff become involved in giving service to clients in any one of the work units they are not necessarily serving all clients in that unit. In the intake work unit social workers, psychiatrists, resident supervisors [4] and clerical staff are involved from time to time, but only the social workers participate in all intake cases. The other staff categories serve 35, 14, and 58 percent of the cases, respectively.[5]

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[2] Screening was studied for a shorter period than the other work units. Three months yielded 476 complete screenings after which recording was discontinued.

Costs of other personnel categories involved in intake must, however, also be charged to all cases, even though not all cases are served by them. On a random basis it must be assumed that every child receiving intake service *may* be the recipient of an average amount of the services usually offered in this unit. These values are expressed in the last line of table 68 (see appendix) and in several subsequent tables, as "adjusted mean cost in dollars."

Somewhat like screening, intake time per case is greater at the mean than the median, indicating again that considerably more than half of the cases tend to have shorter intakes than the mean for the group, and that a few costly cases pull the mean upward.[6]

Work unit 2—pre-admission

Pre-admission *begins* with the first activity following referral of the case to the institution. It *ends* when the social worker obtains the physical custody of the child from his parents or guardians, or with some other disposition of the case.

During pre-admission the primary focus of the service is on preparation for care. A decision has been reached in central intake as to the division of the total agency to which the child will be referred. He is then assigned to a social worker in that division who will work with him and his parents. Although an institutional social worker is assigned to the case—the same worker, usually, who will be assigned after admission—the child still lives at home, and both he and his parents are seen by appointment in the agency's central office.

Staff categories most involved in the completion of this work unit are social workers (in all cases) and resident supervisors. Clerical staff and psychologists work with about one-fourth to one-half of the cases.

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[3] Maximum observed, 221 days, with a mean duration of 65 days.

[4] Resident supervisors enter the intake work unit during the child's visit to the institution.

[5] All intake cases receive clerical time, but only 58 percent do so while still in intake. The records of others are typed somewhat later.

[6] Due to considerable under-recording by social workers in the intake work unit, resulting from methodological shortcomings in this research (see appendix I on methodology), the actual time and cost of an intake are considerably below their true value. Comparisons within the unit are meaningful. However, comparisons outside the work unit should be avoided.

Psychiatrists and cottage parents may also be involved peripherally in certain decisions as to the child's cottage allocation, but these instances are infrequent.

Pre-admission is a relatively brief and homogeneous work unit. Minimum and maximum durations observed during the study period were 1 to 51 days, with a mean of 15 days. While, as in the two preceding units, the mean cost ($44.50) is still higher than the median ($36.58), it falls close enough to it[7] to indicate that the influence of some exceptionally high costs in a unit with generally low costs is not throwing the mean too much out of line.

Work unit 3—admission

Admission *begins* with the first activity after physical custody of the child is obtained by the worker. It *ends* when the child first enters the cottage to which he is assigned.

Admission involves transferring custody of the child from his parents to the institution, and placing him in the specific cottage where he will live. Admission also includes a medical examination and brief introduction to the layout of the institution and some of its key staff.

In all but the rarest of instances, this is a one day process. During that day three categories of staff are routinely involved. These are: the social worker who accompanies the child from the main office to the institution and who escorts him through the institution itself, the medical-dental staff who give him the examination mentioned previously, and the resident supervisors whom the child may or may not meet.[8]

The cost of admission is small, averaging approximately $15 without much deviation.[9]

Work unit 4—institutional adjustment

Institutional adjustment *begins* with the first activity following the child's arrival at his cottage. It *ends* with the last activity of the worker aimed primarily at adjusting the child to separation from his family and entry to the institution.

The institutional adjustment period (or what some social workers would call the "beginning" period) is mainly a time for getting used to a new environment. If the child is to obtain therapeutic value from living in the institution, he must learn about its physical and social structure, its mores, its practices; and having learned these, he must abide pretty much within their limits. Otherwise he may be ostracized by his peers or become a target for their aggression. He may have difficulties with institutional staff.

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[7] Around the 58th percentile.

[8] Many of the meetings of children with resident supervisors that occur during admission are so brief that, in accordance with instructions to staff, they remain unrecorded. (See p. 298 regarding recording procedures.)

[9] The range is relatively narrow and distribution close to symmetrical. See appendix, table 70.

This initial period of stay in the institution, under the double stress of separation from parents and the need to adapt to a new and drastically different environment, has been recognized as requiring a great deal of service. As Bettelheim puts it:

> The child often spends several months [at the beginning of his placement] in which he just seems to be marking time. But the child is not idle. His time is actually spent in testing to see if he must really come to terms with the School, with the values and the way of life it stands for. During this time he may try at all costs to get around the need to have to change his ways.[10]

Indeed, he may even try to convince the institution "that he is so bad that he is 'beyond repair!' "

Institutional adjustment varies markedly among children—in meaning, in duration (4 to 205 days, with a mean of 53.8), in its severity as a process, and in cost in staff time. After progression through the intake, pre-admission and admission processes of the agency, the child now faces all at once and for the first time the full gamut of professional services. Some, like cottage life and activities, are nearly always immediately involved. Others, like psychiatry, psychology and remedial education, are involved selectively. Unlike the previous work units, the cost of completion of a unit now consists of the time required from all nine of the care and treatment services in the institution. To various extents, each contributes to the cost of the child's care during the institutional adjustment unit.

While in each of the preceding four work units the predominant source of cost is in social work operations, in work unit 4 the cost of cottage parent time is far greater than that of any other staff category, being more than a third of the total cost. The other categories contributing markedly to the cost of care here are social work, medical-dental service and activities.

Like the cost distributions for the other work units, institutional adjustment also has a mean somewhat higher than the median, because of a small number of very high cost units. The mean is, however, not very far above the median. (See appendix, table 71.) It should be noted that the anticipated high cost of care in this unit cannot be deduced directly from the data given. A comparison of per month cost in work unit 4 with the other resident care units (that is, 5 and 6) reveals the following approximate monthly costs:

Work unit 4, Institutional adjustment	$131
Work unit 5, Life adjustment	127
Work unit 6, Discharge	111

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[10] Bruno Bettelheim, *Love Is Not Enough.* Glencoe, Illinois: The Free Press, 1950, p. 46.

Thus, while the initial period in the institution may well require some special efforts on the part of staff, these either continue through the next work unit or are replaced by others nearly as costly. A substantial drop in the monthly cost of care does not occur until the case has progressed to work unit 6.

Work unit 5—life adjustment (major phase of treatment)

Life adjustment *begins* with the first activity of the worker aimed at preparing the child to leave the institution. The entire treatment process is considered in the light of such preparation. The process *ends* with the decision to discharge the child from the institution· that is, to return him to his home, or place him elsewhere.

In an institution where the primary function is treatment in a group-living environment, life adjustment is understandably the longest and costliest of the units.

In fact, it may be viewed as *the* crucial unit in the entire case process.

As previously indicated, this unit was broken down, for measurement purposes, into months of care, designated as subunits.[11]

The mean cost of the unit totaled over all of its subunits [12] is high both in minutes and dollars. It consumes about 48,000 minutes (800 hours) of cottage parent time, 7,600 minutes (127 hours) of social work, 4,500 minutes (75 hours) of activity staff services, and similarly high amounts of the other services studied. The mean cost of completing the work unit is $5,900, which is higher than the median ($4,395).[13] Again, as was the case in some previous work units, the range of costs in the life adjustment unit is broad and the distribution is unbalanced by a small number of very costly cases.

When viewed in terms of the adjusted mean cost (that is, the mean cost of a service spread over all the cases in the work unit, regardless of their receipt of the given service), the cost of cottage parents looms by far the largest. It is followed, at considerably lower cost, by social work, activities, medical-dental service, psychiatry and remedial education, with resident supervisors, psychologists and clerical service as relatively minor cost items.

As noted in discussion of work unit 4, the mean subunit (that is, monthly) cost of work unit 5 is only slightly lower than the mean subunit cost of work unit 4. However, *the reasons for these costs differ markedly.* In work unit 5, psychiatry, remedial education and psychology—three of the four major treatment services—are higher than in the institutional adjustment unit. (See appendix, table 72.)

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[11] Although this unit was, in the opinion of numerous practitioners consulted, impossible to subdivide systematically for general application, it is obvious that a unit with a mean duration of more than 2 years cannot be intensively studied as a whole.

Similar subdivision was applied to work units 4, 6 and 7, the durations of which were relatively extensive.

[12] The number of subunits was determined by an analysis of cases discharged during the study. Days under care for each case were calculated and the mean computed. From this mean, the mean days of work units 4 and 6 were then subtracted.

[13] Located at approximately the 63d percentile.

Work unit 6—discharge

Discharge *begins* with the first activity after a decision is made to discharge the child from resident care. It *ends* with the last activity involved in the physical removal of the child from the institution.

Treatment functions of an institution are not complete until discharge arrangements are made and carried out. The discharge process itself requires a mean of 94 days (range 1 to 213), indicating that in most instances considerable preparation must take place. During this preparation, the general care of the child must of course be continued.

The expectation would therefore be that cost of care would rise somewhat during the discharge period. But this does not seem to be the case. Instead, there is a decline in intensity of all services, with the slight exception of remedial education and psychology. Also, as one would expect, there is a decline in the subunit (monthly) cost of the nine services studied, from $131 for work unit 4 to $111 for work unit 6.

The general service pattern in discharge is not markedly different from that in the other residential care units (work units 4 and 5). Cottage parent time is still by far the paramount cost item, followed by social work, activities, medical-dental and psychiatric costs. Resident supervision, clerical time and psychiatry are again relatively minor cost items. Mean cost of the work unit is somewhat more than $600, with a considerable range of difference between individual costs. Again, the mean is higher than the median [14] because of the effect of a small number of very costly units. (See appendix, table 73.)

Work unit 7—aftercare

Aftercare *begins* with the completion of the child's removal from the institution. It *ends* with the institution's withdrawal from the case.

Continuation of certain institutional services after discharge is often required. Such service, given on an outpatient basis, involves primarily the social work staff, although in rare instances it may involve psychiatrists, resident supervisors and other staff categories. Of the cases discharged during the study period, 38 percent received aftercare service (of 13 to 433 days), with a mean of 143 days each. The cost of aftercare is drastically lower than service in the institution.

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[14] Falling at about the 63d percentile of the distribution.

A mean aftercare subunit costs $12, and the unadjusted cost for the entire work unit is $146.52.[15]

Work unit 8—special services

Special services are those which do not fit into any of the above work units, and are generally performed for a specific case—in most instances a former case, now closed.

Thus, work unit 8 is entirely different from the work units discussed heretofore. It is outside the orderly progression of the other units through which a case moves. The reason for examining it is to develop a base for predicting what present cases may cost after they have been closed. This can be predicted by measuring present service to past cases. Service in work unit 8 may be direct or may be confined to answering inquiries.

Data gathered during the study period indicate that for every work unit 6 (discharge) that is completed, 2.8 special services are later performed. These are predominantly social service and psychiatric reports, at times compiled in consultation with personnel of other categories. The mean cost of such a unit of service receiving both social work and psychiatric time is about $25, but this is drastically adjusted downward, since many of the units (93 percent) do not involve psychiatric time, the primary item in cost. The adjusted mean cost (computed without regard to the receipt or nonreceipt of a given service by the case) is approximately $5, and the cost of servicing a discharged case (requiring 2.8 services following discharge) is about $15. (See appendix, table 75.)

General tendencies

The appendix tables (67–75) on which the preceding material in this chapter has been based not only detail the cost in minutes and dollars of the several work units, but also indicate some general tendencies. These deal with the relative distribution of cost among the several categories of staff, the shapes of the cost curves and the comparability of two independent procedures for computing cost.

1. **Relative distribution of cost:**

   First, the two costliest categories are cottage parents and social workers. In resident casework units the cost of cottage parent service is consistently between one-third and one-half the cost of combined services of all categories of staff. Furthermore, cottage parent cost in these three work units is more than three times the cost of the next highest cost category—social work. In the pre-institutional and post-institutional units (screening, intake, preadmission, admission, aftercare and special services) the predominant item is social work, which accounts for 60 to 100 percent of the cost of a unit.

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[15] Again, the distribution curve of cost is such that the mean falls between the median and the 75th percentile. However, the mean cost of aftercare is affected even more drastically by a few high cost units than was true for the under-care units 4, 5 and 6. In aftercare, the mean falls very close to the 75th percentile. (See appendix, table 74.)

2. Shape of cost curves:

Secondly, time investment and cost in these units vary widely, with a majority of the cases receiving a relatively low time investment, though not so low as those receiving the smallest investment of all. Consistently, and this is true for all units, the mean falls above the median, but, equally consistently, it is always lower than the case falling at the 75th percentile level.[16]

This consistent tendency for a small number of units to cost so much that they pull the mean considerably above the median is worthy of note. It will receive further consideration in the study of characteristics of children and staff in relation to the cost of care.

3. Comparability of procedures:

Thirdly, two procedures and two time bases used for computing cost of a work unit yield similar data.

The first procedure was applied to *six* months of experience (January–June). It involved computing cost of a given category of staff in a work unit by obtaining the mean time per unit invested by the *whole category* and then multiplying mean time by the mean per minute cost of the personnel in the category.

The second procedure was applied to *ten* months of experience (January–October). It required beginning with *individual staff member per minute costs*, then computing cost per unit, and finally summarizing to produce the mean costs for each unit.[17]

The similarity of results obtained by the two procedures indicates that:

1. *Six* months of data reveal costs that are not markedly different from those obtained in *ten* months.
2. Since cost computations based upon per minute costs of a *whole* staff category can be considered accurate, discrepancies in work unit costs are, in the main, not the result of variations in costs of *individual* personnel in each category.[18]

II. Predictive Ability of Work Units

One of the chief purposes of a time-and-cost study in performance budgeting is to arrive at time and money requirements for the completion of work units. The data should not only reveal *present* costs but establish measures stable enough to predict future costs. Much of the usefulness of a time cost study depends on the reliability of the findings as a base for prediction.

Almost equally important, from an administrative point of view, is the period of time required to produce cost data which can be considered reliable. Few if any institutions would be willing or able to continue a detailed timestudy over more than several months. The questions, then, with regard to the predictive ability of findings are two:

1. How adequately do the time data predict the future cost of work units or future staff needs?
2. What is the shortest period of time recording needed to produce tolerably good predictions?

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[16] In other words: mean remains below the 75th percentile.

[17] The first operation was manual except for time data produced by IBM. On the second operation computation of cost per unit and summary to produce mean were by machine. Similarity of results indicates—in addition to points mentioned above—that computational errors in manual operation were small if any.

[18] This is true even in the categories of social work and psychiatry, in which the range of per minute cost is $0.059–0.092 and $0.107–0.583, respectively.

Tables 76–78 (see appendix) indicate the predictive ability of 1, 2, and 3 months of data for each of the 9 categories of staff.

Two points must be made regarding these predictions before evaluating their reliability.

First, straight line, month to month predictions cannot be expected to produce accurate forecasts, since the time investment in a subunit (that is, a month of care in work units 4, 5, 6, and 7) will reflect the actual number of days in the month during which a child may receive care—and these vary. For instance, *February*, having 28 days, cannot be expected to serve as a good predictor for subunits in *July*, which has 31 days—more than 10 percent additional days of care. Forecasts must therefore be adjusted to the actual length of the month.

Variation in length of the month affects live-in staff, such as cottage parents, activities, resident supervisors, *every day*. The same reasoning also applies to live-out staff, such as social workers, psychiatrists, psychologists, but only in relation to *work* days. For example, in 1955 there were 18 work days in February and 21 in July—a difference of nearly 17 percent.

Secondly, the time investment per subunit in several categories of services is directly affected by the amount of staff time available. This factor depends upon administratively determined situations like vacation schedules.

Simply stated, the above two points mean that in forecasting cost of care consideration must be given to the amount of contact between child and staff which is physically possible in given periods, especially in work units broken into subunits and in staff categories giving a large proportion of their time to direct services to children. Tables 76–78 (appendix) have been developed to take this consideration into account. By so doing, predictive errors were reduced.

The data in tables 76–78 indicate that predictive statements within tolerable limits of error[19] may be made from 2 and 3 months of experience. When a forecast is made from 3 months (January, February and March) and applied to the period April–October, the margins of error between predicted and actual time investment for the several categories of staff are as follows:

Cottage parents	34 approximate error 0.2 of 1 person.
Social workers	10 approximate error 0.5 of 1 person.
Psychiatrists	4 part-time, approximate error 0.5 of 1 person.
Resident supervisors	4 part-time, approximate error 0.5 of 1 person.
Medical-dental	8 (some part-time), approximate error 1 person.
Remedial teachers	3[20] approximate error 0.1 of 1 person.
Activities	10 (some part-time),[21] approximate error 3 persons.
Clerical	3 approximate error 0.1 of 1 person.
Psychologist	1 approximate error 0.1 of 1 person.

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[19] "Tolerable limits of error" are defined as those not leading to discharge or hiring of a single staff member in any one of the service categories.

[20] One remedial teacher also functions as a psychologist, but his primary service is remedial education.

[21] Considerable increase in staff during July and August.

With the exception of the medical-dental and activities categories, a forecast based on *3 months* and applied to 7 other months during that same year falls close enough to the actual experience to be acceptable. Except in the two categories mentioned, an administrator using such a forecast would not make errors leading to unnecessary hiring or dismissal of staff.

When a forecast is made from a *2-month* predictive base, the forecast is less accurate for social work, psychiatry, remedial education, activities, and psychology, but *in none of these does it lead to a change in the conclusions based on 3 months' experience. In other words, a 2-month base produces data that predict nearly as well as 3.*

However, the *1-month* base leads to errors above the established level of tolerance (more than one staff person) in the cottage parent and psychology categories, in addition to medical-dental and activities. The 1-month base is therefore considered inadequate.

A striking feature of forecasting from all three bases is that a consistently higher time demand is predicted than was actually recorded during the test period. The significantly large errors are all errors of *over-prediction.* Of numerous possible reasons for over-prediction, two seem to have direct support in data obtained by the study. One factor is seasonal; the other is one which might be called "recording attrition"—staff tiring of the record keeping or overlooking the need for it.

The seasonal factor conducive to error arises primarily in the medical-dental category. Clinic and hospital records indicate a heavier use of services during the early months of the year (winter) than during the later months (spring, summer, and fall). This seems true both for inpatients (mean monthly population 38 in January–March, 35 in April–October) and outpatients.[22]

The second factor, "recording attrition," had been anticipated throughout the study. Efforts to prevent or reduce it included continuous sharing of information on the progress of the study, as well as individual discussion with staff members on the meaning of the study. Nevertheless, some attrition did occur and it is most serious in those categories of service where the error is greatest: activities, psychiatry, and medical-dental staff.[23]

As time recording progressed, some categories of staff seem either to have reduced their service to individual children, or else to have reduced the recording of such services. Since there is no reason whatever to assume that the ratio of staff time spent in directly chargeable services was reduced as the year progressed, the only conclusion left is that the ratio of directly chargeable services remained constant and the recording of such charges was reduced.

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[22] Although such a seasonal variation has led, at least in part, to an error of estimation, it is not necessary that such be the case in other instances where time recording is used in building a base for performance budgeting. Within the study framework the selection of predictor months has of necessity been limited to the earliest period of the study. Since the study began in January, the predictor months are winter months. In a situation, however, where a 2- or 3-month time sample is taken for future budgetary use, the months may be chosen so as to offset seasonal factors conducive to error.

[23] The association between the errors and the drop in recording is very high ($r_s = 0.96$ and is significant at .01 level. See Sidney Siegel, *Nonparametric Statistics.* New York: McGraw-Hill, 1956, p. 284.)

As table 15 indicates, with the exception of a minor 2 percent increase in clerical recording, there was a general decline in the proportion of working time that was actually chargeable to individual children.

Table 15.—Proportion of work time charged to individual cases during the January–March and April–October periods by category of staff

Category of Staff	Percent of time charged in January–March	Percent of time charged in April–October	Amount of increase or decrease
Cottage parents.*			
Social workers	57.30	55.96	−1.34
Psychiatrists	57.32	49.48	−7.84
Resident supervisors.*			
Medical-dental	44.70	38.14	−6.56
Remedial teachers	66.16	65.29	−.87
Activities	46.78	27.06	−19.72
Clerical	17.62	19.86	+2.24
Psychologist	53.65	50.62	−3.03

*Not computed.

From the very high correlation between errors of over-prediction and "recording attrition," the conclusion seems justified that much if not most of the predictive error is probably not error, but a product of reduced recording, and that similarity of unit costs over time may be under-reflected, because of faulty recording.

Had we recorded for only 2 or 3 months, "recording attrition" would most likely *not* have been a factor in our forecast, and the error due to it would not have occurred. Therefore, it would seem that "recording attrition" should receive even more consideration than seasonal variation, in judging the administrative usefulness of the data.

In an institution wishing to use methods outlined in this study, a time sample for purposes of performance budgeting need not extend over a period as lengthy as this study, which required obtaining not only predictor months but also a known period against which predictions might be tested. Thus, if controls are adequate, "recording attrition" in the non-test situation should not be marked. As the data (tables 76–78) indicate, a 2- or 3-month period of time study provides sufficient material for prediction within tolerable limits of error. Therefore it seems reasonable to conclude that it will be both feasible and much easier to produce time data for performance budgeting in other institutional settings.

Moreover, errors in predictions based on a few months of recording will probably not be greater than what might be expected under the laws of chance.[24]

Summary

Data produced in the time study may be used to establish costs of work units and subunits, including the distribution of such costs. Thus, we may speak of the mean staff time and money cost of an intake, a month under care in work unit 5, or a discharge. We may also see the range of variations that surround the mean cost in each of these units, considering the possibility that variation in cost may be just as important as the average cost.

The study further indicates that a 2- or 3-month recording period is sufficient to produce time data which can be relied upon for tolerably accurate prediction over a relatively long period. Allowing for seasonal variations which occur in the use of medical-dental services, and "recording attrition," which occurs primarily in the activities, psychiatry and medical-dental categories, the data from 2 months (January and February) forecast quite accurately staff time investment in 7 subsequent months (April–October).

III. Computing Total Cost of Care

Previously described data regarding the cost of work units may now be integrated with other costs of care.

Two categories of such costs have been distinguished. The first, a relatively minor one—children's clothing—was found to vary in cost from one work unit to the next. The second, a major item referred to as *fixed costs*, includes all supplies, and services that cannot be directly allocated to individual children.

Jointly, the three kinds of costs—variable work unit cost, clothing, and fixed costs—add up to the total cost of processing a case through the institution.

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[24] In accordance with a sign test performed on the available data, such an assumption seems appropriate. In this instance the test aimed to determine whether the signs (value above and below the median for the 10-month period of the study) distributed in random runs. The test in accordance with Wilks' procedure indicates that randomness may be assumed. (S. S. Wilks: *Elementary Statistical Analysis*, Princeton, New Jersey: Princeton University Press, 1952.)

The u values were: cottage parents, 5; social workers, 4; psychiatrists, 7; resident supervisors, 5; medical-dental staff, 4; activities staff, 4; clerical, 6; and psychologist, 7. Significantly small critical values of u (runs) are 3 at 0.05 and 2 at 0.01. Significantly large critical values of u′ are 8 and 9 for 0.05 and .01, respectively.

From the data in the service budget it is now possible to separate the amounts involved in each of these three cost categories and to charge them individually to a service unit. First are the variable costs of work units, which are known from the time study. Means for each of the nine work units, from screening through service to closed cases, may be totaled to arrive at the time investment by any category of staff or the total cost required for the completion of a case.[25]

Secondly, the costs of clothing may be added to unit costs. A brief study of clothing supplied over a 6-month period indicated that children receive considerably more clothing in the early part of their stay than they do at any time thereafter. Clothing costs enter only into the three work units that are completed while the child is in placement; that is, work units 4 (institutional adjustment), 5 (treatment) and 6 (discharge). Although clothing needs of individual children differ considerably and are probably related to some characteristics of the child, the total cost is small and does not warrant detailed analysis. It has been computed on a per diem basis and is as follows:

Work unit	*Per diem clothing costs*
4	$0.4661
5	.2116
6	.2162

Third are fixed costs (that is, the costs of providing supplies and services) which cannot be allocated to individual work units or service units.

These include expenditures which are the result of daily requirements of the institutional stay of any child. Meals, housing, household staff, watchmen, educational supplies, administrative costs, are examples of items in the fixed-cost category. While there is no doubt that these items are not equally distributed among all children in the institution (some children eat more food, break more windows, scatter more litter than others), on the whole the cost variations from child to child are likely to be small. Since no feasible method for determining these variations was devised, they have not been considered. Budget-wise, fixed costs are the total costs of care (as the term is used in the service budget on page 191 minus the variable costs (that is, cost of services by child care and treatment staff and the cost of children's clothing) and minus cost of intake (which may itself be divided into fixed and variable costs).

After the fixed costs are obtained, they may be divided by the appropriate units to give cost per unit. Fixed cost of intake may be divided by the number of intakes completed, and fixed cost of institutional care may be divided by the number of days of care during the budgetary period studied.

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[25] These cost computations have so far been on the assumption that all intakes, or months of treatment, or discharges, are alike, without regard to characteristics of children or staff. However, this refinement will be discussed later.

In this instance the fixed basic cost per day of care in the institution is \$6.76, and the fixed cost of an intake is \$193.77. These costs may now be used jointly with work unit and clothing costs to arrive at the cost of completing a work unit or a service unit, as has been done in table 18. The result is the cost of any staff category for any one of the work units or for the service unit (sum of column in table 18)[26] and the total cost of any work unit (sum of row in table 18)[27] or service unit for all staff, clothing and fixed costs (sum of columns or rows in table 18).

Table 16.—Fixed costs of institutional care (including central administration but exclusive of intake)

Total cost of care, January 1–June 30, 1955	\$397, 513. 06
Intake costs	17, 664. 96
Cost of care, exclusive of intake	379, 848. 10
Variable costs, including care and treatment staff and clothing [1]	144, 973. 22
Fixed costs for period Jan. 1–June 30, 1955	234, 874. 88
Days of care offered during the above period	34, 725
Fixed cost per day of care in the institution	\$6. 76

[1] Variable costs are as follows:

Cottage parents	\$62, 134. 62
11.08 percent of resident supervisors' cost [a]	2, 076. 77
Activities staff	16, 143. 10
Medical-dental staff	14, 016. 82
20.54 percent of clerical cost [a]	1, 085. 98
Social workers (excluding supervisors)	18, 429. 85
Psychiatry	11, 706. 29
Psychology	2, 710. 47
Remedial education	6, 498. 37
32.96 percent of social work supervisors' cost [a]	2, 518. 57
Total care and treatment staff costs	137, 320. 84
Clothing charged to individual children	7, 652. 38
Total variable costs, Jan. 1–June 30, 1955	144, 973. 22

[a] Some categories of staff invest only a small portion of total work time in activities chargeable to individual children. For these categories only the time actually charged was included in variable costs. Other staff invest nearly all time in activities chargeable to individuals. Their total cost has been included in variable costs.

Table 17.—Fixed costs of intake

Total cost of intake to the institution	\$17, 664. 96
Variable costs (based on time study)	2, 550. 90
Fixed costs (Jan. 1–June 30, 1955) [1]	15, 114. 06
Number of intakes	78
Fixed cost per intake	\$193. 77

[1] This exceptionally high ratio of fixed to variable costs is due largely to serious under-recording which occurred in intake. See appendix on method for further explanation.

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[26] Vertical.

[27] Horizontal.

Table 18.—Mean cost (in dollars) of services and other expenditures for completed cases (based on work unit costs within each staff category)

Work unit	Mean number of days in work unit	Cost of staff time										Cost of clothing	Per unit fixed cost	Total
		Cottage parents	Social workers	Psychiatrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychology	Total			
0	5	...	$1.22	...	...	...	...	...	...	...	[a] $1.22	...	...	[a] $16.13
1	65.17	...	26.32	$2.71	$0.22	...	...	...	$1.90	...	[b] 31.15	...	[b] $193.77	[b] 520.71
2	15.39	$0.32	32.67	0.37	0.48	...	...	...	0.55	$0.31	34.70	...	...	34.70
3	1	...	9.53	...	0.11	$5.62	...	...	...	...	15.26	...	...	15.26
4	53.81	107.32	55.11	3.17	3.10	31.46	$4.84	$24.69	3.43	2.01	235.13	[e] $25.08	[h] 363.84	624.05
5	863.28	1,578.85	501.52	354.21	48.71	426.55	215.52	444.78	23.68	58.98	3,652.80	[f] 182.67	[h] 5,837.93	9,673.40
6	94.4	164.34	49.21	22.81	4.28	37.97	8.63	45.17	2.08	13.41	347.90	[g] 20.41	[h] 638.38	1,006.69
7	142.77	0.03	48.10	5.36	0.16	...	...	0.10	3.12	0.06	[c] 56.93	...	...	[c] 21.49
8	...	0.28	9.32	2.93	0.26	...	...	...	1.97	0.06	[d] 14.82	...	...	[d] 14.82
Total	...	1,851.14	733.00	391.56	57.32	501.60	228.99	514.74	36.73	74.83	4,389.91	...	...	11,927.25
Percent of staff cost	...	42.15	16.70	8.92	1.31	11.43	5.22	11.73	0.84	1.70	100.0	...	...	...

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[a] It has required 13.22 screenings to net an admission.

[b] It has required 2.315 intakes to net an admission (The ratio is somewhat lower during the study period but seems to hold over a longer period of time.)

[c] 37.74 percent of all discharges received aftercare (WU 7) service.

[d] For every child discharged from the institution 2.849 special services (WU 8) were given.

[e] Clothing, WU 4—$0.4661 per diem.

[f] Clothing, WU 5—$0.2116 per diem.

[g] Clothing, WU 6—$0.2162 per diem.

[h] 6.76 per diem—excluding clothing, care and treatment services.

Varying population size and fixed costs

Total costs of child care and treatment staff are affected by the size of the institutional population. If neither the program nor the size and characteristics of the population change, the amount of staff time needed in each category is likely to remain constant.

If the population declines, it may be anticipated that needed staff time will decline. If the population increases, total staff time may be expected to increase. The guide here is the number of work units that are planned for completion and the estimated time required (on the basis of a time study) for the completion of a unit. For example, if by reason of an increased population 50 percent more cases are expected to be discharged next year than this, it is reasonable to assume that it will require 50 percent more time in the discharge work unit to accomplish the assignment. (Time spent to complete a discharge or all discharges in a given period is a known or ascertainable quantity.)

What, however, of the fixed costs? Assuming uniform management, these costs, primarily food and shelter, will be affected by two factors: the general cost-of-living index, and the number of children in the institution. The former is regularly compiled and published by the U. S. Bureau of Labor Statistics. The latter is administratively determined on the basis of demand for service related to the institution's concept as to the children it can serve, and availability of budget, personnel and plant facilities.

Assuming a constant cost-of-living index, what would be the effect on the daily fixed cost of increasing or reducing the child population? A review of items included in basic cost computation indicates that only certain ones will be affected.

It is the considered judgment of the business manager, in which the research staff concurs, that the following items of cost will be affected by substantial (25 children or more) changes in the population within the present plant capacity of the institution:

1. Cost of cottage space
2. Cost of prepared meals
3. Household staff
4. Laundry and clothing room staff
5. Transportation
6. Educational supplies
7. Outings and recreation
8. Motor vehicle supplies
9. Pocket money
10. Barber
11. Sundries
12. Administration

A fixed basic cost of $6.76 per diem was obtained for an average population of 190 children. What would be the effect of adding or subtracting 10 children? In all probability, the total fixed cost would not be affected. The number of days of care—in the 6-month period studied—would be reduced to 32,580, with a per diem cost of $7.21, or increased to 36,200, with a per diem cost of $6.49. Reduction of the population by 40 children would have the effect of reducing *total* fixed cost to approximately $224,000, and days of care to 27,150, with a per diem cost of $8.25. Increase of the population by 40 children would have the effect of increasing the total cost to approximately $250,000 and the days of care to 41,630, reducing the per diem cost to $6.

These cost estimates point up the fact that *in a large established plant, reduction in population increases per diem fixed costs considerably more than expansion of population reduces them. Thus an increase of 40 children (21 percent in relation to the base population of 190) produced an estimated decrease in per diem cost of 11 percent, while a decrease of 40 children produced an estimated increase of 22 percent.* The increase in cost resulting from a decrease in population indicates the relationship between plant size (with operative cost similar for many or few) and the population size which may be desirable from a cost point of view.

D. CHARACTERISTICS OF CHILDREN AND WORK UNIT COSTS

The time study and budgetary data may be used not only to forecast the number and type of work units that will be completed and staff required for this, but also to relate characteristics of children to the cost of their care.

Forecasts of work unit production can be used to estimate personnel needs in each category of staff when the number of produced units is varied but the framework of administrative policy and the nature of the child population is constant. Relationship between characteristics of children and cost can be used to estimate the effect of changes in characteristics of the child population on personnel requirements as well as to predict the costs of providing care and treatment services for children with different problems and backgrounds. There are indications that differences in children's characteristics influence the variety and quantity of service required.

To track down these indications, let us consider again, briefly, one aspect of the cost of producing the various work units as discussed in the preceding chapter. Each of the work units described showed considerable internal variation. That is, not only did cost differ from one unit to the next, but there was marked variation between cases in a given unit.[1]

The obvious question at this point is: What factors, other than the nature of the work units, may influence the time investment of each category of staff in any given case or group of cases in a single unit?

Two possible factors are: characteristics of children and characteristics of staff. This chapter will be devoted to a discussion of the relationship of children's characteristics to staff time requirements and hence costs of care.

The first step is to select characteristics to be related to cost. There appears to have been only one systematic and comprehensive statement on procedures for describing characteristics of children in social welfare programs. This is contained in *A Conceptual Framework for Research in the Children's Field*, by Henry S. Maas *et al.* He cites eight primary divisions: organism, self, personality, reference group, social role, problem, crisis, and adjustment.

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[1] For example, the mean number of minutes of social work required to complete a single work unit 4 is 835, the 25th percentile value of this unit is 487 minutes, the 75th percentile 1172 minutes, and the extreme maximum within the limits of the study is 2588 minutes. The difference then between the social work time consumed by a mean case in work unit 4 and that of an extremely difficult case is some 1750 minutes, or nearly 30 hours.

In work unit 5, the "life adjustment" (treatment) unit, for example, cottage parent time ranges from 1,800 to 200,000 minutes per unit, social work time from 86 to 56,000 minutes, psychiatry from 147 to 36,000 minutes, and so on for the other categories of staff. All these variations occur within the framework of a single work unit.

For the purposes of this study, the first six divisions were used extensively and the seventh (crisis) was used in terms of sources of referral. The last division (adjustment) was not included, although had it been possible to classify adjustment in the form of improvement or movement over any given period of time, it would have been most valuable to relate cost to this item.

With characteristics and groupings available, the question may be posed: How may the characteristics in each of these groupings be expected to relate to time invested by care and treatment staff, and hence to costs?

It then becomes necessary to decide which work units to use in seeking the answer to this question. A test in every work unit is, of course, feasible, but because unit costs differ markedly, and the number of children in each unit at any given time also differs, it seemed most productive to analyze cases in the most extensive and expensive unit of institutional care.[2] This is work unit 5 (life adjustment or treatment). As has been indicated previously,[3] this unit has such a long duration that it has been necessary to subdivide it into monthly intervals designated as subunits. *These monthly intervals of work unit 5 will be analyzed in terms of their time and cost requirements, and in terms of the relationship of these requirements to characteristics of the children receiving treatment.*

The seven groups of characteristics used to describe the institutional population are, again:

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[2] Some units are of relatively little cost consequence and an analysis beyond mean costs and their dispersion is probably not warranted. Some units contain only small numbers of cases and an analysis by characteristics of children is statistically not productive. The mean cost of staff in each work unit and of the total service unit (case) is given in table 18. These costs are: W. U. O., $1.22; W. U. 1, $31.15; W. U. 2, $34.70; W. U. 3, $15.26; W. U. 4, $235.13; W. U. 5, $3,652.80; W. U. 6, $347.90; W. U. 7, $56.93; and W. U. 8, $14.82. Thus of the total cost of care and treatment staff of $4,389.91 for the mean case, $3,652.80, or 83.2 percent, is in work unit 5—by far the most important work unit in the institution. This very high proportion of total cost that is invested in work unit 5 relative to the total case is reflected in the individual staff categories as well. Work unit 5 contains 85.2 percent of cottage parent cost of a case, 68.5 percent of social work cost, 90.3 percent of psychiatric cost, 85.0 percent of resident supervisors' cost, 85.1 percent of medical-dental costs, 94.3 percent of remedial education, 86.4 percent of activities, 64.8 percent of clerical cost and 78.9 percent of the costs of psychological services. Similar to its cost preponderance, work unit 5 also is numerically preponderant in terms of the completed subunits produced in it during the period of study. Following in numeric order from work unit 1 through 8 are the work units or subunits completed during the 10-month period of study: 125, 75, 78, 106, 1,271, 286, 96 and 103. It should be stressed that characteristics of children were not obtainable for all of these complete units. As the child progressed through the care process, information about him increased, with the result that the proportion of units without characteristics tended to decline.

[3] For a review of work units and subunits, see pp. 200–206 and also appendix.

1. Organism
2. Self
3. Personality
4. Reference group
5. Social role
6. Problem
7. Crisis

I. Problem

It seemed logical to begin with the "problem," since the primary questions that face the institution at the time of admission and throughout the child's stay stem from the nature of the child's problem and the treatment services that may help solve it.[4]

As part of these services, the caseworker, in conjunction with others in the institution, attempts to understand the psychodynamics of the child and estimate his degree of health, the pathology of personality structure, the ego strengths, and current capacity to function. A realistic "adjustment" goal is sought, appropriate to the child's social environment and commensurate with his individual capacity. With determination of the "problem" and the expected goal of "adjustment," the caseworker may estimate the differences between the child's present state of unbalance at the "problem" level and his projected state at the "adjustment" goal. A method of action can then be designed to assist the child to move toward the "adjustment" goal by solving or partly solving the "problem." [5]

The processes of defining the nature of an individual child's problem (differential diagnosis) and prescribing procedures for treatment based on the diagnosis (differential treatment) take place within the framework of a unified treatment plan in a therapeutically oriented institution which provides individual care within group care.[6]

Differential diagnosis, differential treatment, and individual, unified treatment require a close relationship between all services provided by care and treatment personnel and common understanding of the problem of each child. In turn, this should have the effect of relating cost to the problem.

"Problem" may include the following three facets: the child and his family, the child's family alone, or the child alone. In this study, all three facets of "problem" are considered. (In addition, a very brief analysis was made of "problem" as perceived at intake.)

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[4] See Samuel Lerner: "The Diagnostic Basis of Institutional Care for Children," *Social Casework*, March 1952, pp. 105–111, for a discussion of this issue. Various definitions of "problem" may be cited in social work literature. Recent statements tend to consider "problem" as a residual of needs that for reasons of failure either in the individual or in some social institutions have been left unmet. The result is an aggravated psychosocial condition which requires social services toward its amelioration. For a more detailed discussion, see Martin Wolins: "A Base for Community Welfare Studies," *The Social Welfare Forum, 1954*, New York: Columbia University Press, 1954, pp. 216–220.

[5] Maas, *et al.*, *op. cit.* p. 49E.

[6] Described by Jerome M. Goldsmith, Rena Schulman, and Hyman Grossbard in "Integrating Clinical Processes with Planned Living Experiences," *American Journal of Orthopsychiatry* XXIV: 280–290, p. 281, as follows: "We conceive of the residential treatment institution as a psychodynamically determined environment in which the total living experiences of the child are schematized and integrated with psychotherapy, constituting an individual and unified treatment plan."

A. Problems of the child and family

The first classification, combining characteristics of the child, the parent, and the home, may be subdivided into six types:[7]

1. Aggressive-delinquent

These are boys and girls from 12 to 18 years of age with acute behavior disorders or severe personality disturbances. Most of them have come into conflict with community, home or school and are likely to come into conflict with the law. Their behavior is dangerous to themselves or others. They do not respond to restriction or indulgence by adults and have little regard for the ordinary rules of community life.

2. Seriously disturbed pre-adolescent

These are seriously disturbed pre-adolescent children, aged approximately 6 to 12, who have deep-seated and severe emotional difficulties. Many are diagnosed as suffering from "childhood schizophrenia" or "incipient schizophrenia." They frequently show disturbing symptoms such as spitting, drooling, unnatural laughter, crying spells, soiling, wetting, tics. They have a variety of groundless fears. Their home situations are often seriously deprived. They may have been unwanted, or the family structure may have been disrupted by divorce or separation.

3. Severely disturbed adolescent

These are severely disturbed adolescents who find it difficult to develop feelings of friendship, attachment or love for others. They are either dependent or aggressive. Strongly egocentric, they withdraw from social contacts, are moody, irritable, and often show bizarre habits, such as thumb-sucking, wetting and soiling.

4. Unadjusted

These are children from unadjusted, disrupted families where normal patterns of family living have broken down because of instability of family relationships, death or illness of parent, or other situations which disrupt environment conducive to healthy development. Although these children may present some behavior and personality disorders, they do not, on the whole, suffer from serious character disorders.

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[7] Somewhat reorganized and slightly modified, this six-point classification is adopted from that originally developed by Philip Klein and his collaborators. Philip Klein *et al.*: *A Study of Institutional Placement Needs for Children Served by Agencies in Federation*, New York: Federation of Jewish Philanthropies, 1948.

5. Children with no abnormal characteristics, but with inadequate family

These children display no specific abnormal characteristics. Most of them get along well with people, are of average intelligence, and have apparently no deep-seated emotional disturbances. The parents are often weak and ineffectual; their lives may be disturbed and distorted. The children are placed because of the incompetence of their parents, when home or foster home life is not feasible.

6. Shelter cases

These are children with no noticeable emotional problems and with sufficiently intact homes, temporarily broken by the illness or confinement of one or both of the parents.

During the 10-month study period, by far the largest group (45.1 percent) of 221 children in care fell into the category of "unadjusted." The other sizable groups, in order of size, were the "seriously disturbed pre-adolescents" (18.6 percent), the "seriously disturbed adolescents" (11.8 percent), the "aggressive-delinquent adolescents" (11.8 percent) and the children with no marked abnormal characterstics but with incompetent parents (9.5 percent). Seven remaining cases (3.2 percent) were in shelter care or not classified.

Since differential diagnosis was made according to the above classifications, and since differential treatment plans involving all staff are expected to relate to the diagnoses, analysis of the relationship of these classifications to time invested by each staff category should be meaningful. The analysis begins with an assumption (hypothesis) that *children classified into categories 1, 2, and 3 (that is, those considered disturbed) receive more service from every category of staff than the children who are not seriously disturbed but whose primary reason for placement is familial disruption or disorganization (categories 4, 5, and 6)*.

Two questions immediately occur about this assumption:

1. What proportion of children in each of the two groups receive services that are not provided for all children as a matter of routine (nonroutine services: psychiatry, psychology and remedial education)?
2. How much time does a child in each of the two groups receive from every category of staff in the completion of a subunit 5 (one month of treatment service)?

Regarding the first question: The disturbed group is much more likely to be served by a psychiatrist or psychologist or to be enrolled in a remedial education section (see table 19). The differences between the two groups are as much as 23 to 38 percent.[8]

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[8] Differences are all statistically significant at the .05 level or better; i. e., they are quite unlikely to occur by chance. Throughout this chapter α is set at .05.

When proportions are compared, the significance test employs the standard error of the difference between proportions. Comparison of two means is by standard error of difference between means. Three or more means are compared by analysis of variance.

See W. Allen Wallis and Harry V. Roberts: *Statistics: A New Approach*, Glencoe, Ill.: The Free Press, 1956, pp. 418–436.

The phrases, "Is there a significant difference * * *," "yes" and "no" are meant to be equivalent to "H_o," "rejected" and "accepted," respectively.

Table 19.—Percent of children receiving service from psychiatrists, psychologist and remedial teachers, by disturbance of child

Category of staff	Seriously disturbed	Not seriously disturbed	Is there a significant difference in proportions?
Psychiatrists	45.6	7.0	Yes.
Psychologist	47.6	17.8	Yes.
Remedial teachers	60.0	37.3	Yes.

There are also marked differences between the two groups, not only in the *proportion of children* receiving certain services but also in the *amount of service received*.

As table 20 shows, the severely disturbed children required a monthly investment of considerably more time from many of the staff categories than children from disrupted homes who showed no serious behavior abnormalities.

Table 20.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by disturbance of child

Category of staff	Disturbance				Is the difference significant?
	Serious		Minor with disrupted family		
	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 430	412	405	[b] 573	Yes.
Social workers	315	408	246	571	Yes.
Psychiatrists	330	168	240	22	Yes.
Psychologist	229	73	195	49	Yes.
Resident supervisors	44	355	28	454	Yes.
Medical-dental	96	395	95	543	No.
Remedial teachers	307	136	295	156	No.
Activities	150	396	158	561	([c])
Clerical	84	202	72	235	Yes.

[a] Time of cottage parents is one-fourth sample of total.

[b] The total N represents all completed subunits receiving service of the given staff category during the study period, excepting the summer. The summer was excepted due to a considerable realignment of services during that period.

[c] Findings opposite of prediction.

The treatment of a seriously disturbed child is likely to require about 5 to 10 percent more cottage parent time, 20 to 30 percent more social work, 30 to 40 percent more psychiatry, 10 to 20 percent more psychology and about 20 to 30 percent more resident supervisory time than the same unit of care for a child from a disrupted home who shows no serious behavior abnormality. However, services of remedial teachers, medical-dental staff, and activity staff seem unrelated to the intensity of a child's disturbance.

It is apparent from these data that the three types of children designated as seriously disturbed make considerably greater demands on treatment services than the three types whose primary reason for placement is familial disruption or disorganization, and who do not show serious disturbance. While both groups receive treatment, the rate and intensity differ markedly. The conclusion can be drawn, then, that for the disturbed group (types 1, 2, 3) the primary focus is on *clinical services,* while with the less disturbed group (types 4, 5, 6) the primary focus is on *residential services.*

It may be rightly anticipated that the concentration of treatment services on children of the seriously disturbed group will be reflected in the overall cost of completing a subunit of service for this group by the entire care and treatment staff. The mean cost of care and treatment for these children is $146 per subunit, as compared with $119 for children in the not seriously disturbed group.[9] The mean costs of care and treatment, per subunit, for specific categories of children are as follows:

1. Aggressive-delinquents	$156	$146
2. Seriously disturbed pre-adolescents	152	
3. Severely disturbed adolescents	127	
4. Unadjusted	121	119
5. No abnormalities—inadequate families	119	
6. Shelter cases	105	
Mean—all subunits	131	

Clearly, the severity of disturbance as classified by the problem categories proposed by Klein does make a difference in the cost of care.

B. Problems of the family

Another kind of problem that has led to placement in the institution is that of the emotional structure of the family. There has been much stress in social work literature upon the need for knowing the familial situation in order to treat the child effectively. As stated by Ackerman and Neubauer:

> If the therapy of the environment is to be child-oriented, the primary need is an intimate knowledge of the relationship of each parent to the child. The father's personality

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[9] The difference between the means of the two groups is significant at the .05 level.

> as well as the mother's must be understood, and the emotional intetaction between these two persons must be dealt with.[10]

Another author states that it is "* * * not enough to ask * * * what will the *child* get out of placement? One must also ask, what about his *parent*, what does he want and hope to get out of this for himself as well as for his child?" [11]

Thus, treatment of the parental situation is defined as "not merely one angle" but an integral part of the therapeutic process.[12]

Glickman provides a classification of familial problems under the heading of "emotional economy of the family." [13] With minor modifications the categories are as follows:

1. The family where there is chronic long-time violence, both physical and emotional, by a parent who is either criminal, alocholic, or psychotic.
2. The family in which the parent's mental balance is maintained by feeding on the child emotionally, without giving back to the child enough to outweigh the destructiveness wrought by the dependency. In this group one sees an over-attached parent-child relationship, with the mother often having a psychotic personality structure and the father almost totally indifferent or ineffectual.
3. Families with highly narcissistic, immature parents who are willing to allow their children to be reared by foster families or by institutions but are not ready to relinquish parental rights. These parents were originally much deprived and now compensate by giving to themselves before giving to anyone else.
4. Families in which there was once a neurotic balance in the parent-child relationship providing an atmosphere somewhat conducive to the child's personality growth, but in which this balance has broken down. The breakdown may have been caused by the continual grinding away of internal conflicts and from the energy used up in repressing and defending these conflicts. Or the breakdown may have ensued from unexpected tragedies or crises in actual life.
5. Families with an essentially healthy history in which dissolution or disorganization has set in as a result of intra-familial conflict, divorce, serious illness or death of one or both of the parents.[14]
6. Familial situation unclassifiable.

If the first two of these six categories are jointly designated as possessing low emotional economy and the remaining cases designated as possessing adequate emotional economy (at least at some time within the experience of the child), then relative analysis of the two groups may be undertaken along the lines of the following assumption:

Children from families with low emotional economy will receive different amounts of service from all categories of staff than children from other families.

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[10] Nathan W. Ackerman and Peter B. Neubauer: "Failures in Psychotherapy of Children," in *Failures in Psychiatric Treatment*, Paul H. Hoch (Ed.), New York: Grune and Stratton, 1948, p. 86.

[11] Claudeline Lewis: "Selective Intake and Placement in a Children's Institution," in *Creative Group Living in a Children's Institution*, Susanne Schulze (Ed.), New York: Association Press, 1951, p. 143.

[12] Gordon Hamilton: *Psychotherapy in Child Guidance*, New York: Columbia University Press, 1947, p. 282.

[13] Esther Glickman: "Treatment After Placement," in *Working with the Child and His Parents*, New York: Child Welfare League of America, 1954.

[14] This category is outside the Glickman classification.

First, we will examine, in table 21, the extent to which these two groups of children receive services that are not routinely given to every child in placement at the institution.

Table 21.—Percent of children receiving service from psychiatrists, psychologist and remedial teachers by emotional economy group

Category of staff	Emotional economy		Is there a significant difference in proportions?
	Low	Adequate	
Psychiatrists	33	18	Yes.
Psychologist	41	37	No.
Remedial teachers	48	40	No.

The table shows that the low and adequate groups differ only in that a slightly higher proportion of the low group receive psychiatric service. The minor differences in the proportion of children in each group receiving psychological services or remedial education are accounted for by chance variations. Only for the psychiatrists are these differences statistically significant.[15]

In examining the time received by these two groups of children from all staff categories (table 22), we discover that the low economy group received more time only from cottage parents and remedial teachers, and that even for these staff groups the time differences, though statistically significant, are small.

Quite the opposite is true for psychiatry, psychology and activities. In these categories, children from *adequate* emotional economy homes receive substantially *more* time: about 15 percent more psychiatry, 30 percent more psychology, and 15 percent more activity time.

Such a mixed service pattern has a balancing influence on the total cost of care and treatment received by these two groups. Identical time does not, of course, always indicate identical cost, since per minute rates within the staff categories differ considerably, especially in psychiatry, medical-dental and social work. Since approximately one-fifth of the subunits involve psychiatrists and psychologists, the upward influence of these categories on the cost may not be very marked. And since there is no difference in the service demands made by these two groups on social work (also an expensive category) or medical-dental, it may be anticipated that differences in cost will not be statistically significant.

This is indeed the case. Completion of a subunit of care and treatment in the low emotional economy group costs $137. In the

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[15] α is .05 throughout this study.

Table 22.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by the emotional economy of the family

Category of staff	Emotional economy of family				Is the difference significant?
	Low		Adequate		
	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 427	376	407	609	Yes.
Social workers	284	373	269	606	No.
Psychiatrists	300	108	345	82	Yes.
Psychologist	170	48	240	74	Yes.
Resident supervisors	37	310	34	499	No.
Medical-dental	99	366	94	572	No.
Remedial teachers	306	153	293	139	Yes.
Activities	139	363	164	594	Yes.
Clerical	77	176	78	261	No.

[a] Cottage parent time is a one-fourth sample of total.

adequate group the cost is $127. Whether for reasons suggested above, or because of institutional practice, definition of items, or use of these items in the study, groups classified according to emotional economy of the family do not differ in cost.

C. *Problems of the child*

A third aspect of the problem is the psychiatric diagnosis of the child. Classifications in this category are: behavior disorders, neurotic disturbances, psychotic disorders, sociopathic personality, and organic disturbances. None of the children was diagnosed to have organic disturbances. Nine percent were unclassified and the remain-

Table 23.—Percent of children receiving service from psychiatrists, psychologist and remedial teachers by psychiatric diagnosis of child

Category of staff	Diagnosis		Is there a significant difference in proportions?
	Psychotic	Other	
Psychiatrists	60.0	19.6	Yes.
Psychologist [1]	59.1	28.9	Yes.
Remedial teachers	87.7	37.4	Yes.

[1] The data on services of the psychologist are grouped for psychotic and sociopathic cases vs. all others.

Table 24.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by diagnostic classification of child

Category of staff	Diagnosis										Is the difference significant?
	Behavior disorder		Neurotic		Psychotic		Sociopathic		Other		
	Mean time	Number units	Mean time	Number units	Mean time	Number units	Mean time	Number units	Mean time	Number units	
Cottage parents	[a] 422	196	410	590	451	80	426	41	396	78	Yes.
Social workers	282	195	268	585	336	79	294	41	227	79	Yes.
Psychiatrists	349	58	316	68	301	46	348	14	83	4	No.
Psychologist	237	35	182	57	230	11	216	9	310	10	No.
Resident supervisors	45	181	30	465	44	70	49	39	22	54	Yes.
Medical-dental	106	187	94	562	94	78	80	39	98	72	No.
Remedial teachers	246	55	313	165	321	39	196	7	324	26	Yes.
Activity	168	189	152	579	110	73	163	41	178	75	Yes.
Clerical	69	99	80	245	92	42	90	17	57	34	No.

[a] Cottage parent time is ¼ sample.

ing 91 percent were classified as follows: behavior disorders, 21 percent; neurotic disturbances, 57 percent; psychotic disorders, 9 percent; and sociopathic personality, 4 percent.

Service expectations for these children were projected as follows:

Children with psychotic disorders, sociopathic personality, neurotic disturbances, and behavior disorders will receive differing amounts of service.

Psychiatrists, psychologist and remedial teachers, the three staff services not routinely available to all children, are much more likely to serve children with psychotic disorders than those in the other diagnostic groups. Although not shown in the table, there is also a tendency for these staff categories to serve a somewhat higher proportion of the sociopathic children than those with behavior and neurotic disorders.

The amount of time invested by several staff categories in completion of treatment subunits seems also to be related to diagnostic categories. However, the relationship does not appear where it might be most expected—in psychiatry and psychology. It is true, as the table below indicates, that proportionately more psychotic than other children receive service from psychiatrists, psychologist and remedial teachers, but it is not true that the hours of service given them are substantially greater. Service is somewhat greater in the cottage parent category and in social work.

However, as the above tables show, a consistent pattern of difference in time investment does not appear.

A pattern does emerge, however, when cost of *all* care and treatment services is considered for each diagnostic category. The monthly costs of treatment (subunit 5 costs) are as follows:

1. Behavior disorders	$135
2. Neurotic disorders	124
3. Psychotic disorders	166
4. Sociopathic disorders	139
5. Other disorders	127
Mean of all groups combined	131

The children diagnosed as having psychotic disorders are considerably more costly to care for than any others.[16] In fact, if the neurotic children are considered as a base (since they constitute 57 percent of the total population), the psychotic children are 30–35 percent more costly, and the sociopathic 10–15 percent more costly. The last two groups are the heaviest consumers of care and treatment staff effort when evaluated on a basis of cost.

D. *Problem as perceived at intake*

When the intake worker decides that an admission to the institution is desirable, he notes briefly on the record a "reason for placement." This is, in effect, a quite tentative diagnosis of the essential nature of the problem. Implicitly included are the characteristics of the family, the child, and their interrelationship. Such an early and quite superficial attempt at diagnosis cannot be expected to be accurate. However, should it relate to services and to cost, it would be a good criterion to use, since it is so easily obtained at an early stage in the case.

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[16] Differences between means are statistically significant.

This item has not been exhaustively analyzed. It differentiates only in respect to the time investment of social workers and resident supervisors, but not of other categories of staff. For both of these staff categories the heavy time investment is with groups called "problem in parent-child relationship" and "problem in behavior of child," as compared with "disruption of home" and "problem in behavior of parent." Both the social workers and the resident supervisors invest considerably more time with the category "problem in behavior of child" than with those children whose problem is in the parent-child relationship.

The above discussed relationships are reflected in subunit costs of care and treatment for the several categories, as follows:

1. Disruption of home	$129
2. Parent-child relationship	130
3. Behavior of child	143
4. Behavior of parent	121
Mean cost of all subunits	131

A marked variation around the mean cost does not appear, and only one category (behavior of child) is somewhat more costly to care for and treat than all of the others.[17]

Summary

A descriptive grouping of characteristics designated as problems has been related to the cost in personnel time and funds required for the completion of a subunit in work unit 5, that is, care and treatment of a child during a full month's treatment in the institution.

Four separate aspects of the problem were analyzed: child and family, family only, diagnosis of the child and reason for the child's placement in the institution. The most differentiating of these aspects has been the problem of child and family. This aspect has shown marked differences between the cost of serving children whose primary reason for institutional placement has been their own disturbance and the cost of serving those whose inadequate home environment has required placement.

Aside from the difference in cost of providing care and treatment for children in these two groups, there are also marked differences in the amount of time they receive from the various services. Children in the disturbed group receive considerably more cottage parent time, social work, psychiatry, psychology and resident supervisor's time, while getting no less than the other children of all the remaining services. It seems apparent that this aspect of problem should be useful in prediction of cost of care.

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[17] Difference between means is significant.

II. Crisis

When a child's problem produces behavior that his family or community cannot tolerate, a crisis occurs which provides the immediate reason for seeking placement. Sometimes the crisis is slow in coming. Often it is not. A parent is returned to the hospital after a renewed episode of violence; yet another child is born into an already inadequate familial situation.

No procedure for defining crisis was found, and therefore the resource used in crisis to channel the case into placement was substituted for a description of the crisis. This resource is usually known as source of referral.

Four traditional sources of referral to the agency have been idenified. These are the welfare department in the city from which most of the children come (5 percent are referred by the welfare department); the municipal children's court or court-related agency (16 percent); a social agency or school (51 percent); and non-agency source, that is, friend, professional person or self (28 percent).

How do these channels of crisis relate to service and cost of care? It has been found that the service patterns of cottage parents, social workers and psychiatrists relate to the source of referral. Those of other staff do not.

Table 25.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by source of referral

Category of staff [a]	Welfare department		Court		Agency		Self, etc.		Is the difference significant?
	Mean time	Number units	Mean time	Number units	Mean time	Number units	Mean time	Number units	
Cottage parents...	[b] 412	58	389	158	429	499	405	270	Yes.
Social workers....	289	58	223	158	310	495	236	268	Yes.
Psychiatrists......	368	10	233	20	358	124	224	36	Yes.

[a] Time differences for other staff categories are not significant.

[b] Cottage parent time is one-fourth sample.

As the above table shows, children referred by social agencies or the welfare department require more time, on the whole, than do children not so referred. These two groups jointly are the high time-consumption groups, as compared with court- and self-referred cases. With the exception of psychiatric time, agency referrals are consistently the highest consumers.

Their high consumption is again reflected in total cost of care and treatment services. Agency-referred cases cost $139 per subunit, compared with $121 for court- and self-referrals and $124 for referrals of the welfare department.[18] [19] Care and treatment of agency-referred cases is about 15 percent more costly per subunit 5 than the care and treatment of court- and self-referrals. Like the family and child aspects of problem, so the source of help used in crisis is related to cost of care and may be used in prediction and budgeting.

Summary

The immediate condition leading to placement is the crisis which results when a child's problem exceeds the bounds of family or community tolerance. The resources sought in crisis, ultimately leading to placement, are known as sources of referral.

Sources of referral were found to be related to the time investment of some staff categories, as well as to the total cost of providing care and treatment services to a subunit. Cases referred by social agencies consumed more time of cottage parents, social workers and psychiatrists and cost more than cases referred by other sources.

III. Organism

An individual reacts to both problem and crisis in terms of his own structure as an organism. This structure may be expected to affect the nature of his problem, the reaction of his environment to his problem, his functioning in the institution and the institution's functioning with him.

The concept of organism is defined by Maas as follows:

> Organism * * * refers to the totality of anatomical parts and interdependent systems that compose a living being, engaged in the process of self-maintenance, growth and reproduction.[20]

Maas and his students distinguish chronological age, sex, functioning intelligence, and somatic development as components of organism that should receive attention in studying groups of children in relation to social welfare services. The first three of these have been included in this analysis; the fourth, somatic development, has been omitted because serious developmental abnormalities would preclude the child's admission to the institution.

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[18] The difference between the mean for agency-referred cases and the court- and self-referral groups' mean is significant at the .05 level.

[19] Sources of referral are very likely to be related to the social position of the family. See Henry S. Maas *et al.; Socio-Cultural Factors in Psychiatric Clinic Services for Children,* Northampton, Mass.: Smith College Studies in Social Work, February 1955, pp. 50–51.

[20] Henry S. Maas, *et al.: Conceptual Framework for Research in the Children's Field,* Berkeley, Calif.: School of Social Welfare, University of California, June 1954. (dittoed.) p. 23.

A. Age

Practitioners interrogated with regard to the first component, age, repeatedly assumed that it was related to social work services. This assumption is not surprising, and is in line with much social science literature which indicates that age and sex play major roles in what society expects from individuals and in the individual's concept of his own status.[21]

The institution's expectations of how age groups will behave is, however, apt to differ considerably from expectations of both adults and children in the child's home environment. The institution is prepared for a wider range and greater variety of children's reactions. What is important for purposes of this study is the fact that whatever permissiveness or restriction the institution finds necessary in order to achieve its treatment goals with the child will be related to his service demands. These demands will in turn relate to the child's perception of his role and the institution's perception.[22]

Talcott Parsons, Bruno Bettelheim, Fritz Redl, and Lois Murphy, among others, have provided descriptions of these perceptions. Murphy and Bettelheim both comment on the latency age group as amenable to adult authority.[23] The pre-adolescent is described by Redl as being just the opposite—harboring "surprising irritability, distrust, and suspicions * * * Easily offended and constantly ready with accusations that adults don't understand." [24] By adolescence, Redl tells us, the child is glorying in "emancipative behavior." [25] Specifically, according to Parsons, "emancipation" includes: [26]

1. Compulsive independence of and antagonism to adult expectations and authority. This involves recalcitrance to adult standards of responsibility and, in extreme instances, treating the conformist—who, for instance, takes school work seriously—as a "sissy" who should be excluded from peer group participation.

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[21] Otto Pollak *et al; Social Science and Psychotherapy for Children,* New York: Russell Sage Foundation, 1952, pp. 133–134.

[22] Henry S. Maas and Martin Wolins: "Concepts and Methods in Social Work Research," in *New Directions in Social Work,* Cora Kasius (Ed.), New York: Columbia University Press, 1954.

[23] Lois B. Murphy: "Social Factors in Child Development," in Theodore M. Newcomb and Eugene L. Hartley (Eds.), *Readings in Social Psychology,* New York: Henry Holt and Co., 1947, pp. 135–136. Bruno Bettelheim: *Love Is Not Enough,* Glencoe, Ill.: The Free Press, 1950, p. 122.

[24] Fritz Redl: "Pre-Adolescents—What Makes Them Tick?" Reprint from *Child Study* by Child Study Association of America (no date).

[25] Fritz Redl: "The Art of Group Composition," in Susanne Schulze (Ed.), *Creative Group Living in a Children's Institution,* New York: Association Press, 1951, p. 89.

[26] Talcott Parsons: "Psychoanalysis and the Social Structure," *The Psychoanalytic Quarterly,* vol. 19, July 1950, pp. 378–379.

2. Compulsive conformity within the peer group of age mates. It is intolerable to be "different"; for example, not to use lipstick as soon as the other girls do. Related to this is an intense fear of being excluded, a corresponding competitiveness for acceptance by the "right" groups, and a ruthless rejection of those who don't make the grade.
3. Romanticism: an unrealistic idealization of emotionally significant objects. There is a general tendency to see the world in sharply black and white terms; identification with one's gang, or team, or school tends to be very intense and involve highly immature disparagements of other groups.

Among the 221 children studied, 28 percent were in the age group 7–11 years (latency); 54 percent were 12–14 years (pre-adolescent); and 18 percent were 15 and 16 years old (adolescent).

Differences in behavior of these three age groups lead us to expect differences in services they will require, and costs of serving them.

There are indeed substantial differences in the service required of the psychiatrists, psychologist, and remedial teachers by the three age groups. In the latency period, 33 percent of the children are served by psychiatrists, as compared with 20 percent of the pre-adolescents and adolescents.[27] Adolescents, on the other hand, are more likely to receive service from the psychologist (who is responsible for school counseling, along with psychometrics); 57 percent of the adolescents receive his service, as compared with 27 percent for children of other age groups.[27] Remedial teachers, because of their close tie to the grade school system in the institution, serve 48 percent of the latency and pre-adolescent children and 11 percent of the adolescents.[27]

Table 26.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by age group of child

Category of staff	Age of children						Is the difference significant?
	Latency		Pre-adolescence		Adolescence		
	Mean time	Number of units	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 442	249	408	558	401	178	Yes.
Social workers	320	247	264	555	246	177	Yes.
Psychiatrists	405	57	243	101	387	32	Yes.
Psychologist	292	30	201	54	175	38	No.
Resident supervisors	36	208	32	464	41	137	No.
Medical-dental	89	241	98	537	102	160	No.
Remedial teachers	288	79	301	203	354	10	No.
Activities	143	239	167	549	130	169	Yes.
Clerical	89	114	77	237	63	86	No.

[a] Cottage parent time is one-fourth sample.

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[27] All three of the differences are significant.

As the above table indicates, significant differences in actual time received by children of each age group occur only in the cottage parent, social work, psychiatry, and activities categories. The younger the child, the more cottage parent and social work time he receives. Adolescent rebellion, if at all reflected in these data, is seen only in the work of the psychiatrists who, while they see a smaller proportion of adolescents, give nearly as much time to those they do see as to those in the latency age group. Children in adolescence and latency receive nearly twice as much psychiatric time per subunit as do the pre-adolescents. The pre-adolescents, on the other hand, are apparently the more outgoing, more self-motivating group, as indicated by their heavier use of the activity program.

In terms of total cost of care and treatment services, the three age groups rank as follows:

1. Ages 7–11 (Latency)	$142
2. Ages 12–14 (Pre-adolescence)	128
3. Ages 15–16 (Adolescence)	124

The difference between the latency group and the two others combined is statistically significant.

Cost of care of the latency child is, then, 10–15 percent more than care of pre-adolescent and adolescent children. A major factor in this cost difference is the heavier consumption of cottage parent and social work time by this group of children. Perhaps it is their receptivity to treatment, their amenability to adult guidance,[28] that places the greatest demands upon the adults most available to them—the cottage parent and the social worker.[29]

B. Sex

Another factor influencing society's demands on an individual's behavior is his or her sex.

It seems likely that cost of care in the institution may be sex-related, just as, to a limited extent, it was found to be age-related.

Because of lower social tolerance outside of the institution for nonconforming behavior in females than in males, the female will receive more attention than the male in an institution devoted to the treatment of the emotionally disturbed.

Of the 221 children studied, 139 (63 percent) were male and 82 (37 percent) female. Sex of the child did not affect the proportion of children served by psychiatrist, psychologist, or remedial teacher.

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[28] Bettelheim, *op. cit.*, p. 122.

[29] The adolescent's rebellion is contained within the institution not so much by heavier service (that too occurs, in psychiatry for example) but perhaps by the institutional structure itself—a factor not reflected in the time data. Also inadequately noted is the possibility that chronological age groupings are not fully applicable to disturbed children.

Table 27.—Percent of children receiving service from psychiatrists, psychologist and remedial teachers by sex of child

Category of staff	Sex of child		Is there a significant difference in proportions?
	Male	Female	
Psychiatrists	24	20	No.
Psychologist	37	28	No.
Remedial teachers	38	47	No.

However, sex did relate to the amount of time required for the completion of a subunit of treatment in several categories of staff, where girls received more time. This holds true in social work, where they received 10 percent more time than boys; in psychology, where they received 90 percent more; and in activities, where they received 60 percent more. A small factor operating in the opposite direction is cottage parent time, of which the boys received more (about 3 to 4 percent) than the girls. Other staff categories served the two sexes about equally.

Table 28.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by sex of child

Category of staff	Sex of child				Is the difference significant?
	Male		Female		
	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 420	615	406	370	Yes.
Social workers	264	610	292	369	Yes.
Psychiatrists	320	123	320	67	No.
Psychologist	155	65	284	57	Yes.
Resident supervisors	35	503	34	306	No.
Medical-dental	96	579	96	359	No.
Remedial teachers	304	169	293	123	No.
Activities	127	593	199	364	Yes.
Clerical	79	274	74	163	No.

[a] Cottage parent time is one-fourth sample.

There is, of course, a possibility that in some services, especially activities, type of programing and type of staff may be primary factors in higher time consumption among girls. If, for example, program is so organized that more prepared activity is available to girls than to boys, then girls get more service, solely because of the nature of the program. If, however, more services are made available to girls *because they are thought to need them,* then the girls are receiving more service by reason of their sex.[30]

Higher time consumption by girls in several of the service categories should result in different total costs of care and treatment for boys and girls, even though differences between the sexes in other services are lacking. Such a difference, although not great, does occur. Cost of care and treatment for girls is approximately $135 per subunit (month) of treatment, for boys about $128—approximately a 5 percent difference.[31]

C. *Functioning intelligence*

Much of the care and treatment process in the institution hinges on verbal and other forms of communication between treatment staff and the child being treated. Greater difficulty in communication may be expected with the low intelligence child than with the child of average or high intelligence. Also, the low intelligence of a child is often related to his behavior difficulty. Lourie has found that among children with I. Q. scores of 80–89 "the intellectual subnormality was directly responsible for the behavior difficulty presented by the child," a condition which applied in nearly one-fifth of his sample.[32]

The institution studied does not admit children who are mentally retarded.[33] Nevertheless, the possibility of a relationship between I. Q. and cost was studied from the point of view of selectivity of services, time investment by categories of staff, and overall care and treatment cost.

Our assumption was that the functioning intelligence of the child is related to the cost of his care.

Of the children in the institution at the time of the study, 134, or 61 percent, were of below average intelligence (I. Q. 65–104), the remaining 87, or 39 percent, were above average (I. Q. 105–154). Staff experience in the institution did not seem to indicate a relationship between intelligence and service requirements. Psychiatrists and psychologist served similar proportions from each of these two groups. Remedial teachers, on the other hand, served the below average group much more frequently. Proportionately three times as many low as high intelligence children are served by remedial teachers. Thus, the selection of children to receive remedial education services is based both on severity of problem (see table 19) and functioning intelligence, even though an assumption frequent among institutional staff is that the relationship is only with problem and not with intelligence.

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[30] Regarding differential use of activities, one of the assumptions that has been put forward is that boys are more inclined than girls to organize independent play groups that do not require staff supervision and preparation.

[31] The difference is statistically significant.

[32] L. A. Lourie: "Conduct Disorders of Intellectually Subnormal Children," *American Journal of Psychiatry,* vol. 93, 1937, pp. 1025–1035.

[33] These children may be cared for in another division of the agency, especially intended to serve them.

Table 29.—Percent of children receiving service from psychiatrists, psychologist and remedial teachers by intelligence of child

Category of staff	Intelligence of child		Is there a significant difference in proportions?
	Low (IQ 65–104)	High (IQ 105–154)	
Psychiatrists	23	22	No.
Psychologist	33	35	No.
Remedial teachers	56	18	Yes.

Perhaps the staff assumption is based on the fact that after selection for the remedial service has taken place and the child is enrolled in it, no distinction is made among intelligence groups as to the amount of time a child receives. Although there is a slightly higher time investment with low intelligence children than with those of average intelligence, and a markedly higher time investment than with high intelligence children, the differences (possibly due to the smaller number of units involved in the last group) are not statistically significant. Similarly, there are no differences by intelligence level in the time investment of cottage parents, resident supervisors, clerical staff or psychologist.

But there are very marked differences in the time given by psychiatrists, social workers and activity staff in the completion of subunits with children of low, average and high intelligence.

Treatment subunits of low intelligence children require about 20 percent more social work time than those of high intelligence children, and about 110 percent more psychiatry. Furthermore, the gap between the average and low intelligence child is also very marked. The conclusion seems reasonable that communication difficulties with the child of subnormal intelligence are of special consequence in the treatment processes that take place in social work and psychiatry.

In activities, the only other area of service where differences between groups were significantly large, the low I. Q. group is again the highest consumer of time, but here it is nearly on the same level with the high I. Q. group. Both are about 30 percent above the average group—the lowest consumer of activity time.

Table 30.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by functioning intelligence level of child

Category of staff	Intelligence level of child						Is the difference significant?
	Low IQ 65–84		Av. IQ 85–114		High IQ 115–154		
	Mean time	Number of units	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 407	109	414	669	422	207	No.
Social workers	316	108	273	665	259	206	Yes.
Psychiatrists	559	28	282	125	260	37	Yes.
Psychologist	215	18	223	77	193	27	No.
Resident supervisors	29	81	36	567	34	161	No.
Medical-dental [b]							
Remedial teachers	311	76	298	209	226	7	No.
Activities	190	107	140	645	181	205	Yes.
Clerical	84	50	76	300	77	87	No.

[a] Cottage parent time is one-fourth sample. [b] Not computed—Relationship improbable.

Even though more than half the staff categories computed do not show any marked differences in service from one intelligence group to the next, the very large differences in social work and psychiatry are reflected in cost, and produce a higher cost for the low I. Q. group than for either of the other two. The cost of providing service to the three intelligence groups is as follows, per subunit of treatment:

1. Low (I. Q. 65–84)	$142
2. Average (I. Q. 85–114)	131
3. High (I. Q. 115–154)	123

Cost of care and treatment service is, then, some $19 (15 percent) higher for the low than the high I. Q. group,[34] and some $8 (about 6 percent) more for the average than for the high I. Q. group.[35]

Summary

Three aspects of organism—age, sex and functioning intelligence—were related to service consumption and cost.

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[34] The difference between means is significant.

[35] When the intervals are smaller (10 I. Q. points each) there is an almost perfect negative correlation between I. Q. and cost. ($r_s = -.95$, $N = 10$, probability $< .01$. See Siegel, *op. cit.*, p. 284.)

Data on proportion of children served by psychiatrists, psychologist and remedial teachers, on the time investment of the several staff categories, and on the overall cost of care and treatment services indicate that age, sex and intelligence are related in several ways to time investment and cost.

With regard to age, the latency period child is the heavy consumer of services. He is more likely to be served by psychiatrists and remedial teachers than either the pre-adolescent or adolescent child. Also, he is a heavier recipient of cottage parent, social work and psychiatric time. As a result, the cost of care of latency group children is the highest of any age group in the institution.

Sex, the second aspect considered under organism, does not relate to proportion of children served by psychiatrists, psychologist or remedial teachers. Some differences in time investment do occur in several categories. Girls receive more social work, psychology, and activity time than boys. Boys receive slightly more cottage parent time. Overall cost of care and treatment is about 5 percent higher for girls than for boys.

With regard to functioning intelligence, several categories of staff show decidedly more service to low intelligence children than to those of average or high intelligence. The former are far more likely to receive service from remedial teachers, as well as much more time in social work and psychiatry, with a resulting 15 percent cost difference between the low and the high I. Q. groups.

IV. Self

> "Self" refers to the individual's own idea of what he is like. Self-attitudes are inseparable from attitudes toward others and thus largely determine whether an individual will relate himself to others in a constructive, nonconstructive or destructive way. The dominant way in which he relates himself to others is an important determinant of the type of social services needed and the way in which he will use these services.[36]
>
> Actions * * * derive from feelings and there is thus a close relationship between self-attitudes and a person's ability to love and produce in life. Secure individuals are able to accept others, and work to realize more fully their productive potentialities. Insecure, non-self-accepting persons are unable to love others and are either blocked in their efforts and are unable to produce, or are driven to tremendously competitive accomplishments.[37]

Or, as Newcomb has stated it,

> The attitude of insecurity is a persistent state of readiness * * * *to defend the self against threat.* * * * The attitude of security is not merely the absence of insecurity, but something more positive. It is a persistent state of readiness *to use the self for motive satisfaction.* * * * Both, in summary, are broadly inclusive attitudes toward the adequacy of the self. The attitude of insecurity is one of doubt toward the self;

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[36] Paraphrased from Maas, *et al,. op. cit.*, p. 28.

[37] Maas, *et al., op. cit.*, p. 30.

> the attitude of security one of confidence. Security leads to goal-oriented and insecurity to threat-oriented behavior.[38]

Two dimensions of the self are identified in the preceding material—security and adequacy. How do these dimensions relate to care and treatment costs?

A. Security

Twenty-six percent of the institutional population consisted of youngsters who were largely unable to cope with the degree of pressure and competition inherent in contemporary society.[39] These youngsters were classified as "insecure." The remainder were considered "secure" (28 percent) or were not classified (46 percent).[40]

Within the institution, insecure personalities are offered a formal, consistent and quite elaborate social structure to bolster them up. Is this structure alone sufficiently reassuring and satisfying, or does the insecure child make extraordinary demands for resident and therapy personnel time? Our projection was that the structure alone is *not* sufficient, and that *the child judged as "secure" consumes less service than the child judged "insecure."* Is this true? As the following table shows, 42 percent of the insecure children received service from psychiatrists, as against only 10 percent of those classified as secure.

Table 31.—Percent of children receiving service from psychiatrists, psychologist and remedial teachers by security or insecurity of child

Category of staff	Security		Is there a significant difference in proportions?
	Secure	Insecure	
Psychiatrists	10	42	Yes.
Psychologist	33	44	No.
Remedial teachers	29	40	No.

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[38] Theodore M. Newcomb: *Social Psychology,* New York: Dryden Press, 1950, p. 406.

[39] See John Gillin: *Sociological Foundations of the Psychiatric Disorders of Childhood,* Langhorne, Pa.: Child Research Clinic, The Woods School, 1946, p. 23.

[40] Children were designated as secure or insecure in terms of a number of behavior traits checked by social workers, teachers, cottage parents and resident supervisors. These staff members indicated whether a child did or did not show certain traits. While there was considerable agreement as to what behavior a child did or did not show, some disagreement also occurred. Also, a child's behavior when viewed even by one observer did not give a profile of pure security or insecurity. In order for any differences between secure and insecure children to show statistically, only extreme cases were used, cases in which more than half of all possible responses were checked, indicating possession of a trait. Achievement of relative homogeneity within the group has therefore been accomplished at the expense of the group size. (For description of procedure, see appendix I.) The above discussion also applies to adequacy, leadership and personality items and will not be repeated at those points.

In the consumption of time by the various services the picture is mixed. In social work, psychology and medical-dental services there is no distinction between the secure and insecure. All other staff categories except activities give more service to insecure than to secure children. The difference is especially marked in the service pattern of psychiatrists and resident supervisors, who, respectively, give nearly 20 and over 100 percent more service to children in the insecure than in the secure group.

Table 32.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by security of child

Category of staff	Security				Is the difference significant?
	Secure		Insecure		
	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 398	259	431	290	Yes.
Social workers	272	257	271	289	Not computed.[c]
Psychiatrists	298	25	352	98	Yes.
Psychologist	249	28	172	42	Not computed.[c]
Resident supervisors	22	186	46	274	Yes.
Medical-dental	95	241	101	280	No.
Remedial teachers [b]	....	....	....	....	
Activities	191	250	157	286	Not computed.[c]
Clerical [b]	....	....	....	....	

[a] Cottage parents time is one-fourth sample.
[b] Not computed. N small, variation slight.
[c] Findings opposite of prediction.

The above data on cost of care and treatment bear out the projection that insecure children are more costly to care for than their secure mates. Mean cost of providing a subunit of treatment to secure children is \$120; for insecure children, \$139.[41] Insecure children, then, cost approximately 10 percent more in care and treatment services than secure children. It should, however, be remembered that a very large proportion of the institutional population (46 percent) were not classified as to security.

B. *Adequacy*

The second aspect of self to be considered is adequacy, defined as follows:

> If an individual feels adequate, his productions are commensurate with his abilities, and he is ordinarily satisfied with the results. If he feels inadequate, his attitude

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[41] The difference is significant.

> toward his productions is one of inferiority or superiority. * * * The attitude of inferiority corresponds to that of self-blame. * * * The attitude of superiority corresponds to that of hostility toward others.[42]

Since both hostility and self-blame may be expected to require heavier service than that required by satisfaction with self-achievement, the presumption would be that *the child judged adequate consumes less service than the one judged inadequate.*

However, this presumption is *not* supported by our data. Of the children in the institution, 70 (32 percent) were considered adequate and 49 (22 percent) were considered inadequate. No marked distinction exists between these two groups as to the proportion of children in each served by psychiatrists, psychologist or remedial teachers. Neither is there any marked difference between the amount of service these two groups receive from cottage parents or psychiatrists. The inadequate child does obtain more service from resident supervisors and medical-dental staff.

Children judged adequate cost the institution about $124 per month of treatment, those judged inadequate cost about $130, both groups being less costly than the unclassified children (mean cost for all children is $131).[43]

Table 33.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by adequacy of child

Category of staff	Adequacy				Is the difference significant?
	Adequate		Inadequate		
	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 406	322	414	238	No.
Social workers	267	321	248	237	Not computed.[c]
Psychiatrists	284	44	289	49	No.
Psychologist	243	34	165	28	Not computed.[c]
Resident supervisors	29	227	36	208	Yes.
Medical-dental	86	306	105	229	Yes.
Remedial teachers.[b]					
Activities	182	311	150	233	Not computed.[c]
Clerical.[b]					

[a] Cottage parent time one-fourth sample.

[b] Not computed. N small, variation slight.

[c] Findings opposite of prediction.

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[42] Maas, *et al.; op. cit.*, p. 31.

[43] The difference between the mean cost of the adequate and inadequate is not significant.

Adequacy, then, as defined and measured in this study, is not a good predictor of demands on personnel time or of cost of care and treatment services.

Summary

The individual's concept of himself, reflected in how secure and adequate he feels, has been related to staff services and service costs in the institution. Whether or not a child is secure has been found to relate to consumption of cottage parent time, psychiatry and resident supervisory services. Insecure children received considerably more time from the three staff groups than secure children. Also, the insecure, in line with their receipt of more time in several categories of service, were about 15 percent more costly to care for than secure children.

Adequacy did not prove to be a characteristic substantially related to cost.

V. Personality

A fifth group of children's characteristics is personality. As defined by Horney, and further elucidated by Maas, "personality" is

> * * * the individual's integrated psychophysical pattern, his predictable type of response to life situations, his characteristic overt reactions to intrapersonal stimuli, and his mode of adaptation to the social features of his environment.[44]
>
> One way of describing an individual in a children's population in terms of these relatively consistent behavior patterns is to classify him according to his characteristic mode of relating himself to others—whether he is "toward," "avoidant" or "against."
>
> A predominantly "toward" child is one who approaches others. It may be observed that this is how he characteristically behaves with adults, other children, objects, and situations such as work, play, and school. * * * This type of child is characterized as friendly and cooperative.[45]
>
> The "avoidant" child is one who goes away from others. He is typified as being withdrawn. He is described as being detached because of some inner need to have emotional distance between himself and others. He appears to be self-sufficient and may demand privacy. * * * Such a person does not want to be interfered with.
>
> The "against" child is one who is characterized by hostility, aggressiveness, and competitiveness. He is an attacking type of person. He needs to excel and to achieve success, even though it may show him to be a poor loser. He has a strong need to dominate and exploit others. His attitude is "what can I get out of it" when he enters a situation or relationship.[46]

Use of services by the "toward," "avoidant" and "against" groups has been projected as follows:

"Toward," "avoidant," "against" children will make differential use of services.

A substantial problem was encountered in finding any large number of children who were purely one type or another. Most children seemed to possess traits of all three, and therefore had to be excluded from this analysis. Only 8 (4 percent) of 221 classified children fell into the avoidant group, 22 (10 percent) into the toward group, and 18 (8 percent) into the against group. In view of the small number in each group, the likelihood of significant statistical differences is remote. But those that do occur indicate that this may be a fruitful field for further study.

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[44] Maas *et al.*, *op. cit.*, p. 33.

[45] *Ibid.*, p. 34.

[46] *Ibid.*, pp. 34–36. (See also Karen Horney: *Our Inner Conflicts: A Constructive Theory of Neurosis*, New York: Norton, 1945, for considerations dealing with this dimension of personality.)

Table 34.—Percent of children receiving service from psychiatrists, psychologist, and remedial teachers by personality of child

Category of staff	Personality of child		Is there a significant difference in proportions?
	Toward and against	Avoidant	
Psychiatrists	36	67	No.
Psychologist	35	59	No.
Remedial teachers	31	67	No.

As the above table shows, psychiatrists, psychologist, and remedial teachers all *seem* to be serving a higher proportion of avoidant children than of others. Statistically, however, there is no significant difference,

Table 35.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by personality of child

Category of staff	Personality						Is the difference significant?
	Toward		Avoidant		Against		
	Mean time	Number of units	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 404	91	409	41	419	94	No.
Social workers	321	90	309	41	283	93	No.
Psychiatrists	405	30	281	23	226	32	Yes.
Psychologist.[b]							
Resident supervisors	32	69	40	32	49	90	Yes.
Medical-dental	92	87	96	37	99	91	No.
Remedial teachers.[b]							
Activities	165	91	182	41	205	93	No.
Clerical.[b]							

[a] Cottage parent time one-fourth sample.

[b] Not computed, N very small.

even though a tendency may be indicated by the *consistently higher proportion* of avoidant children served.

As the above table indicates, there is also no significant difference in the *amount* of service received from four categories of staff. Exceptions are the psychiatrists' time, which is much more heavily invested with toward children than with avoidant or against children, and the resident supervisors' time, which is highest among against children. In the latter, the tendency is understandable in the light of administrative services needed to safeguard institution and community from the expressions of hostility characteristic of this group.

On the whole, however, the data do not indicate any value in computing total care and treatment costs for each of the three personality groups. No such computation was, therefore, undertaken.

Summary

Personality was considered in terms of toward—avoidant—against behavior. Due to the rigid criteria used to separate these classifications, the number of children, and thus also the number of completed subunits in each group, was small. No significant differences among the groups have appeared except in psychiatric and resident supervisor's time, and these do not prove that one group is more costly than the others. They do, however, indicate that further study, with better classification, might well be productive.

VI. Groups Motivating Individual Behavior (Reference Group)

Maas states that—

> Any study which proposes to evaluate the needs, operation, or effects of social services for the individual child must take into consideration the groups to which the child has been related during his lifetime.[47]

In examining the relationship between social group membership and institutional care and treatment of the individual, two of many possible factors have been considered. The first is "social class," as reflected by the occupation of the crucial member or members of the child's family. The second is "cultural confusion" existing when the child's immediate family includes members with other cultural or religious orientations than his own.

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[47] Maas *et al.*, *op. cit.*, p. 36.

A. Social class

There is ample evidence now to support the contention that social class is to some extent determined by the behavior of the individual and to a very marked extent determines his behavior.[48]

A social class has been defined by Loeb as a segment of society whose members participate more within that segment than in others, and behave more like each other than like members of other classes.[49]

Three such classes have been designated by Warner and others as lower, middle, and upper. In the institution under study the two classes of primary consequence are the lower and middle. Although some children from upper class homes do receive care, and their number is increasing, at present they are few. Our concern, then, is with lower and middle class children. The middle class has been further divided into upper middle and lower middle groups.

The most obvious characteristic differentiating lower from middle class behavior is the lower class emphasis on satisfying its needs in a hurry. With a background of actual or threatened insecurity, lower class members are predominantly present oriented. The American middle class, on the other hand, maintains a deliberate, saving-for-a-rainy-day attitude.

The lower class desire for immediate satisfaction is most likely to be expressed in striking out against any obstructing, or apparently obstructing, person, object or situation, no matter how inappropriate and unproductive such striking out may be. This aggression places institutions which are generally middle class oriented under greater stress in serving lower class children. Child and institution are more likely to be in conformity when the child and his family are middle class.[50]

In the case of lower class children, the home and community surroundings are often the very antithesis of those valued and strived for by the institution. The result is a gap which calls for additional service. Moreover, since low social status children are likely to come from low economic groups known for a high rate of physical impairments, it is likely that these children will require considerable medical-dental service and possibly some additional services by cottage parents and psychiatric staff.

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[48] The relationship of social class and behavior in everyday life, in learning, and under stress has been studied and described by W. Lloyd Warner and Paul S. Lunt in: *The Social Life of a Modern Community*, New Haven: Yale University Press, 1941; Allison Davis: *Social Class Influences upon Learning*, Cambridge: Harvard University Press, 1951; Jurgen, Ruesch, *et al.: Chronic Disease and Psychological Invalidism*, Berkeley: University of California Press, 1951; Allison Davis and Robert J. Havighurst: "Social Class and Color Differences in Child Rearing," *American Sociological Review*, vol. XI, 1946; and others.

[49] Martin B. Loeb: "Implications of Status Differentiation for Personal and Social Development," *Harvard Educational Review*, XXIII:168–174, Summer, 1953, p. 168.

[50] Fritz Redl and David Wineman: *Controls from Within*, Glencoe, Ill.: The Free Press, 1952.

While all of the above indicates higher service consumption by lower class than by middle class children, it is probably also likely that the families of the latter, with their greater social contacts and social skill, are more able to influence staff behavior and thus obtain services they want.

Based on the foregoing, the following assertion was tested by the study:

Children from lower class homes (parental occupations—relief recipients, laborers, personal service workers and operators); lower middle class children (parental occupations—craftsmen, foremen, clerical and sales workers); and upper middle class children (parental occupations—technical, professional and business ownership) will receive different amounts of care and treatment services.

Ninety-six (43 percent) of the children in the institution were classified as lower class, 58 (26 percent) as lower middle class, and 46 (21 percent) as upper middle class. For another 21 children (10 percent), classification was not determined, since parental occupation was either unknown or outside the range of the class definitions.

Table 36.—Percent of children receiving service from psychiatrists, psychologist, and remedial teachers by social class of child

Category of staff	Class of child		Is there a significant difference in proportions?
	Lower	Middle [1]	
Psychiatrists	15	29	Yes.
Psychologist	26	38	No.
Remedial teachers	32	47	Yes.

[1] Lower middle and upper middle class combined.

As the above table shows, psychiatrists and remedial teachers are considerably more likely to be serving middle class than lower class children in the institution. A similar trend seems to be apparent with the psychologist, but it is not strong enough to be statistically significant.

As distinct from data on the *proportion* of children receiving psychiatric and remedial service, the above data on time required of all services do not show class-related differences in required *staff time*. The only statistically significant relationships are in psychiatry and resident supervisors' services. On the whole, the data in many of the staff categories point in the direction of highest time consumption by upper middle class children.

Table 37.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by social class of child

Category of staff	Social class of child [a]						Is the difference significant?
	Lower		Lower middle		Upper middle		
	Mean time	Number of units	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[b] 412	416	405	274	429	208	No.
Social workers	271	416	259	271	307	206	No.
Psychiatrists	337	88	393	48	227	41	Yes.
Psychologist	167	51	261	22	218	29	No.
Resident supervisors	33	348	31	216	42	171	Yes.
Medical-dental	95	389	91	265	100	201	No.
Remedial teachers	317	121	270	90	299	74	No.
Activities	157	400	168	270	144	203	No.
Clerical.[c]							

[a] Social class undetermined for 87 subunits.
[b] Cottage parent time is one-fourth sample.
[c] Not computed.

In fact, for total care and treatment services the cost of upper middle class children is higher [51] than that of children from either the lower class or the lower middle class. Mean cost of care and treatment per subunit for each of the three class groups is as follows:

1. Lower class	$129
2. Lower middle	126
3. Upper middle	140

A possible reason previously advanced for this difference is the greater social facility of both parents and children in the upper middle class, and therefore ability to communicate demands. A second reason may be that since this group often reimburses the agency for a part of the costs of care, it may feel free to make greater demands on institutional staff, and staff may have to expend time meeting these demands or explaining to the client why they are not being met.[52]

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[51] The differences between means 1 and 2 (combined) and 3 are significant at the .05 level.

[52] The higher cost of care for the upper middle class group (managerial, business and professional workers) may also stem from their different expectations of service. Maas *et al.* (in *Socio-Cultural Factors in Psychiatric Clinic Services for Children, op. cit.*) have found the three socio-cultural groups designated here as lower, lower middle and upper middle class to have differing expectations of who should be served. "The managerial and professional workers . . . tended to expect the 'mother-father-child' approach. The white collar workers tended to expect the 'mother-and-child' approach. The skilled, semiskilled and unskilled workers . . . tended to expect a 'child-only' approach." (p. 68).

B. Cultural confusion

The reason for considering social class as a factor in the relationship between institutional care and characteristics of children is that class represents a particular, known milieu that influences the growth processes of the child and the development of the child's idea of appropriate responses in given situations. Such a learning process is easiest under conditions of relative uniformity and consistency. When strong contradictions exist, they may breed confusion and possibly mental illness, since the child's anchorage in the social structure becomes uncertain.

Differing value systems are quite likely to create cultural conflict between various members of the family, between the family and other families, between the child and other children. Thus, the child of an interfaith marriage, or of immigrant parents (who may be simultaneously striving to maintain cultural identity and integrate into middle class America) may become confused as to where he belongs and—consequently—how he should behave.

The relationships of foreign born parents and their American born children, or of foreign born children and their American born friends may also create confusion and conflict in the child's mind. Such confusion or conflict may be expected to influence the treatment processes of the institution, since these are necessarily responsive to the child's confusion, conflict and resulting behavior.

It would seem likely, then, that institutional service will be greater for children who may be confused by inter-group conflicts than for children brought up in a homogeneous environment.[53]

To test this likelihood, three situations of children were considered:

a. The child's place of nativity (domestic or foreign).
b. Place of nativity of some member(s) of the child's immediate family (the people with whom he lives or has lived in the same house).
c. Presence of other-religion members in the child's family.

The first of these—foreign birth of the child—was applicable only to a very small number of children. In all, 13 (6 percent) of the children were born outside the United States. Because of the small number, analysis was undertaken only of services given to foreign born children by cottage parents, social workers and resident supervisors and of the total cost of serving these children.

Only in the amount of social work time received did a significant difference appear. Social workers take nearly 25 percent more time to complete a month of care of a foreign born than of a native born child. The total cost of care and treatment of the foreign born child is also higher than that of the native born.

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[53] Additional material in support of this hypothesis may be found in M. McBee: "A Mental Hygiene Clinic in a High School," *Mental Hygiene* 19: 238–280, 1935; Theodore M. Newcomb, *op. cit.*: p. 541; Jurgen Ruesch, "Social Technique, Social Status, Social Change in Illness," in Clyde Kluckhohn and Henry A. Murray (Eds.), *Personality in Nature, Society and Culture*, New York: Alfred A. Knopf, 1948, pp. 126–127.

Table 38.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by nativity of child

Category of staff	Nativity of child				Is the difference significant?
	Native born		Foreign born		
	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 414	932	424	53	No.
Social workers	271	926	338	53	Yes.
Resident supervisors	35	768	42	41	No.

[a] Cottage parent time is one-fourth sample.

Foreign born children cost $150 per month, native born $130. The difference in costs of caring for the two groups is about 15 percent.[54]

The number of children of foreign born parents or with other foreign born members of the family is small. In all, 84 (38 percent) of the children fall into this category. An analysis of time investment with them shows significant though not very large differences only in social work and psychiatry, where they require more service. Were the relationship true only for social work or other categories of staff having regular contact with the child's family, the higher service demand might be attributed to difficulties in communication. However, the higher use of psychiatric time seems to indicate that confused culture patterns in the family or with reference to society as a whole do affect the child directly. Since only two staff categories are involved, and not in a major way, costs for children of native and foreign born parents do not differ. Both have a cost of $131 per subunit for care and treatment service.

A third source of cultural confusion might be the presence of other-religion members in the child's family. Although the institution under study admits only children of one faith, 48 of the children's families (22 percent) included other-religion members. However, not a single category of staff indicates any statistically significant difference between time required by children from uniform and mixed religious backgrounds. Neither is there any difference in the cost of providing care and treatment services to these two groups.

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[54] The difference between means is significant at the .05 level.

Table 39.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by presence of foreign born members in child's immediate family

Category of staff	Foreign born members in child's immediate family				Is the difference significant?
	Yes		No		
	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 413	374	416	[b] 472	No.
Social workers	296	374	267	467	Yes.
Psychiatrists	350	63	321	96	Yes.
Psychologist	212	45	190	55	No.
Resident supervisors	35	299	35	393	No.
Medical-dental.[c]					
Remedial teachers.[c]					
Activities.[c]					
Clerical[c].					

[a] Cottage parent time is one-fourth sample.

[b] There were 139 units for which nativity of child's family members was not known.

[c] Not computed.

Summary

The social class of the child's family and the situations causing possible cultural confusion have been examined in relation to cost of the child's care and treatment. Social class was defined in terms of parental occupation. Cultural confusion was defined in terms of place of birth of family members and the existence of more than one religious faith in the family.

The social class of the child and his family was found to relate to services of two categories of staff and the total cost of care and treatment. Psychiatrists and resident supervisors spend more time on the completion of subunits of lower middle class and upper middle class children, respectively, than they do on units of lower class children. Also, the cost of care and treatment services is higher for upper middle class children than it is for either of the two other groups.

Cultural background, on the other hand, did not seriously affect service or cost. The foreign born child did receive significantly more service, but only among social workers. The presence of foreign born members in the child's immediate family tends to require more time from both social workers and psychiatrists. However, these relationships are of minor consequence. Of all three of the variables used in this group, only the birthplace of the child himself relates to the cost of care and treatment. The foreign born child is more costly to care for than the native born.

VII. Role

The concept of *role* covers what society expects of individuals in various status positions. An individual is expected to behave in certain ways considered appropriate to his age, sex, position in the family, in the classroom and among his contemporaries.[55] He cannot always completely live up to these expectations. He may be expected to do far more than he can, or he may assume roles which he is not expected to play.

The test, then, will be for relationship between role and the cost of care, in cases where the child has been unable to fulfill the role imposed upon him by society. We are assuming with Maas, that the degree of a child's ability to live up to what is expected of him, as well as the extent to which role demands are excessive or fail to meet his needs, produces the need for social services and influences how the services will be used and what results will be obtained.[56]

Maas mentions three settings in which a child's roles may be observed: the family, the peer (contemporary) group and the school group. Two of these are examined in the present study. The child's role in the peer group is analyzed from the point of view of his position as a leader or a follower. His role in the family is considered in terms of the *kind* of family unit he has.

A. Peer group role

Using Murphy and Newcomb's concept of a leader as one with "* * * capacity to *interpret the needs of others* and in some sense to represent others, and initiate activity," [57] we expect that such leadership will affect the child's consumption of services. This may be especially true as staff attempts to channel leadership characteristics in conformity with the purposes of the institution.

However, the staff also has special interest in the follower, who must learn to accept his role but at the same time choose his leaders without fully succumbing to their coercive ability.[58]

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[55] See Frederick H. Allen: "Dynamics of Roles as Determined in the Structure of the Family," *American Journal of Orthopsychiatry*, 12:127–134; also, Ralph Linton: "A Neglected Aspect of Social Structure," *American Journal of Sociology* 45:870–887.

[56] Maas *et al.*; *op. cit.*, p. 47.

[57] Gardner Murphy, Lois B. Murphy and Theodore M. Newcomb: *Experimental Social Psychology*, New York: Harper and Bros., 1937, p. 522.

[58] Mayer has phrased staff interest in leaders in relation to the houseparent's functions, but the concept is applicable to the whole care and treatment staff, who must see to it "* * * that every child who has the capacity for leadership gets the chance to assume it at some point. On the other hand, the children who have no capacity for leadership should be helped to accept their status as followers." (Mayer, *op. cit.*, p. 103.)

Thus, special attention is required for both the leaders and the followers. In the opinion of staff, *followers are heavier consumers of staff time, implying costlier care and treatment services.*

Do the data support this opinion? The study shows that a follower is more likely to get psychiatric service. Though the tendency is similar with psychologist and remedial teachers, actual differences in proportions served are not significant. The number of children in each group was small, since only children who (in the judgment of staff) fell wholly and definitely into a leader or follower group were included. Only 35 children (16 percent) were classified as leaders, and 32 (15 percent) as followers.[59]

Table 40.—Percent of children receiving service from psychiatrists, psychologist, and remedial teachers by peer group role of child

Category of staff	Role of child		Is there a significant difference in proportions?
	Leader	Follower	
Psychiatrists	12.9	34.5	Yes.
Psychologist	32.3	41.4	No.
Remedial teachers	22.6	41.4	No.

Significant differences in time invested by the several categories of staff exist only in social work and psychiatry. Both social workers and psychiatrists invest more time in the completion of a subunit involving a follower than a leader. This finding takes on added weight when viewed against the tendency of other staff activity. *All categories of staff analyzed, except the psychologist, tend to invest more time with followers than with leaders.* Even though differences are not statistically significant in themselves for categories other than social work and psychiatry, they become significant when the time of *all* care and treatment staff is *pooled* to produce the cost of a treatment subunit.

The total cost of producing a subunit (one month) of care and treatment for a follower is approximately $144; for a leader a comparable unit of service costs $120.[60] Followers, then, are about 20 percent more expensive than leaders.

B. Family group role

A number of aspects of a child's role in the family group may affect the reactions of both child and parents when placement occurs. Here the child's role in the family unit itself was chosen for study of its relation to cost. The reason for the selection was that the primary

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[59] See consideration of cutting point criteria on p. 240, footnote 40.

[60] Difference between means is significant at .05 level.

Table 41.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by peer group role of child

Category of staff	Peer group role of child				Is the difference significant?
	Leader		Follower		
	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 396	164	409	142	No.
Social workers	224	164	269	140	Yes.
Psychiatrists	261	16	430	44	Yes.
Psychologist	246	18	210	22	Not computed.[b]
Resident supervisors	31	138	37	115	No.
Medical-dental	101	156	104	134	No.
Remedial teachers.[c]					
Activities	171	160	172	138	No.
Clerical.[c]					

[a] Cottage parent time is one-fourth sample.
[b] Findings opposite of prediction.
[c] Not computed.

object of treatment services is to reestablish a role for the child in the context of his existing family.[61] It is thus important to know who composes the "home" where—hopefully—the child is ultimately to be returned. This question may be considered in terms of what key persons are in the home and what key persons are out of it.[62]

Our assumption is that *services received by a child will be related to his home situation.*

Three kinds of home situations were identified:

1. Complete parental unit: either both natural parents are in the home, or else a step-parent or relatives provide a complete parental unit.
2. Parental unit is broken: child lives with mother, as is customary in American society in situations where parents do not reside together.
3. No socially acceptable parental unit: child lives with father only or has no parents.

Group 1 (full parental unit) contained 74 children (34 percent).
Group 2 (broken parental unit) contained 106 children (48 percent).
Group 3 (no parental unit) contained 39 children (18 percent).
For two children the familial situation was not classifiable.

Children in group 1, that is, those from families with complete parental units, were much more likely to receive psychiatric service, but no more likely to be served by the psychologist or remedial teachers.

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[61] For children with families of their own, the casework direction must always be toward return to the own home. The parents and the child must be receiving casework help simultaneously. (Lourie, *op. cit.*, p. 146.)

[62] Hospitalization of parents as a specific reason for placement, an item originally included for study, was not analyzed, since it affected only 13 percent of the population.

Table 42.—Percent of children receiving service from psychiatrists, psychologist, and remedial teachers by type of parental unit

Category of Staff	Parental unit		Is there a significant difference in proportions?
	Complete	Incomplete or none	
Psychiatrists	41	19	Yes.
Psychologist	34	33	No.
Remedial teachers	44	40	No.

Children (all services given to a case are charged to the child) from complete families received more time from cottage parents, social workers, psychologist and resident supervisors than children from incomplete or nonexistent families.

There is considerable evidence that the difference in time required for the completion of a subunit with these children is due directly to the parental unit composition.

First, the staff categories most affected are those most likely to be in contact with the child's parents and relatives. As noted, the greatest proportional time differences between the three groups of children occur in the cottage, in social work and in resident supervisors' time.

Table 43.—Staff services (mean time in minutes) for subunit 5 (month of treatment) by type of parental unit

Category of staff	Type of parental unit						Is the difference significant?
	Complete		Incomplete		None		
	Mean time	Number of units	Mean time	Number of units	Mean time	Number of units	
Cottage parents	[a] 421	329	417	461	380	195	Yes.
Social workers	320	327	255	459	247	193	Yes.
Psychiatrists	318	69	315	95	342	26	No.
Psychologist	299	46	126	54	260	22	Yes.
Resident suprevisors	41	283	34	384	25	143	Yes.
Medical-dental.[b]							
Remedial teachers	318	109	279	148	330	35	Yes.
Activities.[b]							
Clerical.[b]							

[a] Cottage parent time is one-fourth sample.

[b] Not computed.

Secondly, an analysis of social work time invested with this group of children shows a considerably higher proportion spent in work with parents and relatives than is the case for the population as a whole. Moreover, time spent with parents is added to work charged to the children themselves.[63]

Cost of care and treatment services is also related to the completeness of the parental unit. As might be expected, the higher services of individual staff categories in behalf of children from complete families are reflected in the cost ot care of these children. The costs decrease from the child with a complete family unit, down through the one with an incomplete unit to the one with essentially no family unit. Mean cost of a subunit in each of the family types is as follows:

1. Complete family	$142
2. Incomplete family	130
3. No family	114

Care and treatment of children from complete families is, then, nearly 25 percent more costly per subunit of treatment than the care of children with no family, and nearly 10 percent more costly than the care of children with incomplete families.[64] The difference in effort and consequently in cost probably reflects the agency's program for reestablishing the child in his home.

Summary

The concept of *role*, behavior expected of the child in his home and in his peer group, has been considered in relation to staff services required and consequent cost of care and treatment. In his peer group the child was classified as a leader or follower. The data showed that followers are about 20 percent more costly to serve than leaders.

The child's role in the family was examined in relation to the kind of family in which he lived. It was found that the greatest institutional effort was made in cases where a complete parental unit exists and where the child's role must be reestablished with all members before he can be successfully returned to his family. Children from homes with complete parental units were approximately 25 percent more costly to care for than those having no families, and about 10 percent more costly than those having incomplete families with only the mother present.

Family composition, then, appears to be a sound item to consider in predicting cost of care and treatment.

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[63] Work with parents and relatives consumes 16.65 percent of social work time in work unit 5. For the children from complete family units the proportion is 18.35 percent while maintaining approximately the same proportion of time with child (26.51 percent) as with children from other types of family structure.

[64] The differences between means are significant.

E. PREDICTING COST OF CARE AND TREATMENT FROM CHARACTERISTICS OF CHILDREN

The primary function of the preceding analysis has been the selection of characteristics useful in predicting care and treatment costs with less error than would occur in predictions based on the assumption that all children are alike and that the cost of service to each and every child is therefore equal to the mean.[1] Since the major cost unit in the institution studied is work unit 5 (life adjustment or treatment) this will be the unit for which methods of cost prediction will be explained.

Table 44 summarizes the relationship of selected characteristics of children to personnel time and cost. The seven items included in the table (problems of the child and family, diagnosis, age of child, functioning intelligence, social class, peer group role, and parental unit)[2] show wide differences in requirements for personnel time and service to children of varying characteristics.[3]

On the whole, the table indicates that social work is a good but not infallible criterion of total cost of a case. Wherever social work time investment is high, total cost of care and treatment is also high. Conversely, low investment of social work time is closely related to low cost of care and treatment.[4]

Such a finding is important in performance budgeting. If the social work time investment reflects total cost of care and treatment, it may possibly be used to forecast cost of care of children of different characteristics without requiring other categories of staff to keep time records. This would, however, be true only if a forecast of *total* (rather than categorical) cost is desired.

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[1] The effect of characteristics on prediction of cost may be seen as operating within the limits of producing no improvement over the use of the mean alone to a perfect forecast of cost for each and every subunit.

[2] These are markedly discriminating attribute items.

[3] A child suffering from psychotic disorder, for example, tends to obtain 14 percent more cottage parent time, nearly 50 percent more social work, 90 percent more resident supervisors' time, 64 percent more remedial teachers' and clerical time than some other children in the institution. In the aggregate of care and treatment services such a child costs nearly 36 percent more than a child diagnosed as neurotic. Similarly, a child from a complete parental unit (both father and mother figures in the home) is far more costly to care for than a child from an incomplete parental unit (only mother in home) or one from no existing family unit.

[4] The correlation between the two items, i. e., the index of social work input and the cost index for the seven characteristics cited, is .905 (both based on means and not on individual scores).

Table 44.—Index of staff time input and cost in percentage added to least costly category for selected, highly discriminating characteristics of children

[Least costly cateorgy—100.0]

Item	Time investment of—									
	Cottage parents	Social workers	Psychia-trists	Psycholo-gist	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Cost of services
Problem of child and family										
a. Disturbed child	106.2	128.5	137.9	117.4	157.1	[1] NSD	NSD	NSD	116.7	124.6
b. Disrupted family	100.0	100.0	100.0	100.0	100.0	NSD	NSD	NSD	100.0	100.0
Diagnosis of child										
a. Behavior disorder	106.8	124.7	NSD	NSD	195.7	NSD	126.0	153.6	122.8	110.0
b. Neurotic disorder	103.5	118.1	NSD	NSD	134.8	NSD	159.7	139.1	142.1	100.0
c. Psychotic disorder	113.9	148.5	NSD	NSD	191.3	NSD	163.8	100.0	163.2	135.8
d. Sociopathic disorder	107.6	130.0	NSD	NSD	213.0	NSD	100.0	148.2	157.9	114.2
e. Other	100.0	100.0	NSD	NSD	100.0	NSD	165.3	161.8	100.0	104.2
Age of child										
a. Latency period	110.0	130.0	166.5	NSD	NSD	NSD	NSD	110.8	NSD	113.0
b. Pre-adolescence	101.5	106.9	100.0	NSD	NSD	NSD	NSD	129.2	NSD	102.4
c. Adolescence	100.0	100.0	158.9	NSD	NSD	NSD	NSD	100.0	NSD	100.0

Intelligence										
a. Low (IQ 65–84)	NSD	121.9	215.0	NSD	NSD	NSD	NSD	135.5	NSD	115.6
b. Average (IQ 85–114)	NSD	105.0	108.4	NSD	NSD	NSD	NSD	100.0	NSD	106.6
c. High (IQ 115–154)	NSD	100.0	100.0	NSD	NSD	NSD	NSD	129.1	NSD	100.0
Social class										
a. Lower	NSD	NSD	148.9	NSD	109.7	NSD	NSD	NSD	NSD	102.3
b. Lower middle	NSD	NSD	173.1	NSD	100.0	NSD	NSD	NSD	NSD	100.0
c. Upper middle	NSD	NSD	100.0	NSD	135.5	NSD	NSD	NSD	NSD	111.1
Peer group role										
a. Follower	NSD	119.6	164.8	NSD	NSD	NSD	NSD	NSD	NSD	120.0
b. Leader	NSD	100.0	100.0	NSD	NSD	NSD	NSD	NSD	NSD	100.0
Parental unit										
a. Complete	113.4	129.0	NSD	237.3	161.5	NSD	114.0	NSD	NSD	124.6
b. Incomplete	109.7	102.8	NSD	100.0	130.8	NSD	100.0	NSD	NSD	114.0
c. None	100.0	100.0	NSD	206.3	100.0	NSD	118.6	NSD	NSD	100.0

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[1] No statistically significant difference between categories.

As table 44 reveals, social work time is *not a good index of time invested by other categories of staff*, especially those not closely related to the treatment functions (for example, medical-dental and activities).

Table 44 also indicates that several categories of staff are not markedly affected by the characteristics of children. These categories are psychology, medical-dental, remedial teaching, and clerical staff.[5] It would therefore seem that keeping time records in these categories would serve no useful purpose.

Several questions arise from the noncorrespondence of time investment of social workers, psychiatrists, cottage parents, and resident supervisors with that of other staff. What are the origins of such noncorrespondence? Is it planned? Is it desirable? Is some of it due to lack of communication regarding the treatment needs of a child? Are some services not really involved in treatment and therefore not affected by differences of consequence to treatment such as those relative to problem, diagnosis, or parental unit structure? Whatever the answers to such questions may be, the staff operations are what they are and the data about them may be used to plan continuation or change in program and in population. Regardless of the reasons for the service pattern, the question before us remains: What is the cost of providing care and treatment services to a child who is the possessor of certain combinations of characteristics?

Selection of Characteristics

It should be remembered that while children's characteristics have in this study been itemized and individually analyzed in relation to cost, all children possess more than *one* of the characteristics analyzed. This fact immediately raises these questions:

1. *Which* characteristics should be considered?
   (Considering them all is neither necessary nor desirable.)
2. How should they be combined?
3. How should the prediction of cost be tested?

Three factors are involved in the selection of characteristics likely to be useful in prediction:

1. How much difference the characteristic shows between different cost groups;
2. How easily the characteristic can be "measured" or described;
3. How universal the characteristic is likely to be.

The first of these criteria is statistical. It is possible to compute for each characteristic of the child or his situation an index which shows the degree of difference related to different classes of the characteristic.[6] Such an index may be computed for the time invested by any category of staff or for the total cost of care and treatment in a subunit. The latter course has been followed in producing for the institution studied an index value for each aspect of children's characteristics as related to the cost of care and treatment in subunits of work unit 5 (treatment). Here is the result:

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[5] Time records do elicit relationships in the activity category but these, by design or accident, are at variance with the service pattern of social work which tends to be a good indicator of overall cost and perhaps overall treatment plan. The correlation between social work and activity time is negative and quite low.

I Problem	I_d
Problem of the child and family	14.34
Problem of the family	5.61
Problem of the child	5.73
Problem as perceived at intake	4.66
II Crisis	
Source of referral	9.88
III Organism	
Age	4.19
Sex	3.42
Intelligence	5.47
IV Self	
Security	9.14
Adequacy	2.46
V Personality	
Toward, avoidant, against	5.26
VI Groups motivating individual behavior (reference groups)	
Social class	4.69
Cultural confusion	
a. Whether child was foreign or native born	4.83
b. Whether parents were foreign or native born	1.69
c. Other-religion person in home	1.97
VII Role	
Peer group role	12.37
Parental unit (2 items)	
a. Completeness of parental unit	7.14
b. Hospitalization of parents	0.41

These index values may now be arranged in order of magnitude, beginning with 14.33 for problem of child and family and ending with 0.41 parental unit (hospitalization of parents). Next, a number of the items at the top of the list may be combined for use in forecasting cost of producing a unit in which this combination of char-

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[6] Such an index designated here as I_d (index of discrimination) becomes large when the discriminative ability of an item is large. It is small or zero when the discriminative ability of an item is small or none. Classes are designated as "c;" characteristics as "t."

$$I_d=\sqrt{\sum_c \frac{N_c(\overline{X}_c-\overline{X}_t)^2}{N_t}}$$

acteristics appears. Before this step is taken, however, the two other questions must be answered:

1. How easily can the characteristics chosen be measured?
2. How generally can they be applied?

To decide whether a characteristic can be easily measured, we must further ask:

> How *soon* in the progress of the child through the institution is the characteristic likely to be known?
>
> For what *proportion* of individuals is it likely to be known?
>
> How difficult is it to pin down—how many tests, interviews or examinations are required, etc.?

Answers to these questions have eliminated three items with quite high index values: security, personality (toward, avoidant, against), and peer group role.

General applicability of a characteristic means the extent to which it is likely to apply in settings other than the one studied. In the study, one of the highest indices was obtained for the source of referral. The courts in this instance refer the least costly cases, private agencies the most costly. This difference, however, may be local and temporary. It may not apply elsewhere or even in the present setting at a future date. Therefore it is not a desirable component in prediction and has been excluded.

Finally, an exclusion was made to prevent effort that would be unrewarding. Since it was found that "problem of the child" merely duplicated the cost relationship demonstrated by the highest characteristic in the index, "problem of the child and family," the former characteristic was eliminated from the base for prediction.

When characteristics to be included in a forecast base have been selected, the next step is to devise methods for using them, singly or in combination.

The three procedures chosen for testing in this study were:

1. Using the single characteristic with the highest index value. (designated as procedure I)
2. Using logical combinations of sub-classes of the three highest index characteristics. (procedure II)
3. Developing a score based on a relatively large number of characteristics. In this instance seven were selected. (procedure III)

Procedure I: The Use of a Single Characteristic to Forecast Cost of a Subunit of Service

The main value of this procedure is its relative simplicity. Only one characteristic is required. Children who can be classified in the several aspects of this characteristic may be assumed to require the mean expenditure in their class. This mean can be obtained for any given period, then tested in some other period. Obviously, the characteristic chosen would be one with the highest index value which was both easily obtainable and generally applicable.

The problem of child and family fulfills these prerequisites. Table 45 shows the predicted and test costs under procedure I.

Table 45.—Prediction base and test period means of cost of care and treatment (in dollars) by class of characteristic in procedure I

Characteristic: problem of child and family Class	Base period		Test period	
	Mean cost [a]	Number of units	Mean cost	Number of units
Seriously disturbed pre-adolescents	$193.57	58	$150.89	127
Aggressive delinquents	173.49	39	146.29	68
Severely disturbed adolescents	141.69	54	117.52	82
Unadjusted	126.48	179	110.96	279
Disrupted familial situations (no serious disturbance in child)	125.50	24	110.76	45
All others (mostly "shelter" cases)	123.33	12	100.94	18
Total	144.20	366	123.60	619

[a] These cost values are uniformly higher than those for the full study period apparently due to "recording attrition" later in the study. See table 15.

Note regarding services during summer.—The above table does *not* include the summer months. During the summer the mean cost of care and treatment services drops substantially below that in either the base or the test period as used here,[7] *but the aggressive delinquents who are less expensive in the test and base periods which occurred in spring and fall become the most expensive in the summer.*

The summer cost of care and treatment for each subunit in categories of problem of child and family (as in table 45) is as follows:[8]

Class	Mean cost	Number of units
Seriously disturbed pre-adolescents	$119	62
Aggressive delinquents	136	33
Severely disturbed adolescents	100	34
Unadjusted	102	121
Disrupted familial situation (no serious disturbance in child)	103	23
Others	96	10
Total	$110	283

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[7] The range of cost of care and treatment services in the summer is markedly reduced ($64–$265) and there is a very heavy concentration of scores at the low end of the curve. ($64–$124 contains 220 out of 283 subunits, or approximately 78 percent of the total.)

[8] Note the almost complete lack of differentiation in the last four categories, and also the reversal of the first two.

During the summer treatment emphasis seems to shift to the very demanding children, that is, those who are severely aggressive. But this is true only for those staff categories whose vacations are concentrated during the summer period, especially social work and psychiatry. Here is the time investment in a subunit of treatment for all categories of staff in the summer and during the full period of the study:

Category of staff	Mean time in 10 months	Mean time in July and August
	Minutes	*Minutes*
Cottage parents	430	442
Social workers	243	178
Psychiatrists	298	[1] 213
Psychologist	225	[1] 307
Resident supervisors	38	38
Medical-dental	121	180
Remedial education	(2)	(2)
Activities	155	249
Clerical	73	75

[1] Marked reduction in units getting any service during this period.

[2] No summer program.

The conclusion based on these data seems to be that *the treatment functions* of the agency are considerably altered during the summer period.

Following the production of data on the three month mean cost of providing care and treatment service to each of the classes in procedure I, it is possible to test the assumption that these mean costs are good predictors for cost of serving these classes during some future period. Such a test was made on the period April 1–October 31, excluding July and August. These five months were called the *test period.*

A 26.7 percent improvement in prediction resulted from using the means of the classes of characteristics rather than the mean of the whole population.[9]

Procedure II: The Use of Three Characteristics to Forecast Cost of a Subunit of Service

A single characteristic—problem of the child and family—when used in forecasting cost of completing subunits of treatment has

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[9] The improvement is stated in terms of comparative size of the variance around the mean for each expression. For formulae used to determine variance, and further statistical documentation of the reduction in error, see appendix I on method.

$$\rho_1^2=\frac{\sigma_1^2-\sigma_2^2}{\sigma_1^2}=\frac{2170.10-1590.97}{2170.10}$$

$$\rho_1^2=.267$$

$$\rho_1=.517$$

reduced prediction error by 26.7 percent. Can it be further reduced by simultaneously introducing several other characteristics?

To answer this question parental unit and functioning intelligence of the child were added to problem of the child and family. The former two characteristics were selected because they showed the greatest differentiation within the limitations of obtainability and general application previously discussed. After some merging of categories in each of these characteristics, eighteen different combinations resulted. For each combination a mean cost was obtained in the base and test periods and variations from the mean were computed.[10] Table 46 shows the results.

Improvement in predictive accuracy resulting from using *three* characteristics is about 32 percent, or some 6 percent closer to actual cost than when a *single* characteristic, selected for its high differentiating power, is used. Cost predictions from the mean of the combined class of three characteristics will fall with 68 percent certainty within \$38.34 of the actual cost and with 95 percent certainty within \$76.68 of it.[11]

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[10] σ_1^2 based on the mean of the entire population, i. e., not differentiated by class of characteristics, (this value is the same of course as in procedure I) and σ_3^2 based on the mean of each class. (Computation of σ_3^2 is exactly identical to that of σ_2^2 given in appendix.) The variance based on the means of 17 classifications, (the eighteenth had no units in it) of three characteristics is somewhat lower yet than was the variance based on the 6 classes of a single characteristic.

$$\sigma_3^2=1470.0\ (\sigma_3=\$38.34)\text{ and }\sigma_1^2=2170.1$$

$$\rho_2^2=\frac{2170.1-1470.0}{2170.1}$$

$$\rho_2^2=.323$$

$$\rho_2=.568$$

[11] The variances computed in procedure II as well as those in procedures I and III may well be larger than the facts warrant. That is, a strong possibility exists that one source of error is not related to the predictive ability of the data but is the result of what has been called in an earlier chapter "recording attrition." Throughout the study period the proportion of staff time charged to children as compared with the total time worked continued to decline. Staff thus recorded progressively less service to the children than previously in the study although the amount of time worked remained largely the same. A direct consequence of the lower proportion of time charged to time worked is a lower cost of care in the test period months than in the base period, with a resulting increase in the error of prediction. Since there is no evidence and no reason to believe that a reduction in service actually did occur, it may be assumed that the mean per subunit cost of care should have been the same for both periods, namely, that the mean prior to "recording attrition" (the base period) is the true mean for the total period and the test period scores should be corrected accordingly. The correction can be proven to equal $(\overline{X}^1-\overline{X}^*)^2$ and the variance may then be reduced by this constant error introduced by underrecording. Such a reduction produces in procedure II a σ_1^2 of 1745.74, a σ_3^2 of 1045.64 and a ρ^2 of 0.4110, i. e. improvement of 41.1 percent. There is no incontrovertible proof, though, that the drop in cost is entirely due to recording attrition. If it is, then the error reduction is 41.1 percent, if not, it lies somewhere between 32.3 percent (the uncorrected value) and 41.1 percent (the corrected value).

$\overline{X}^1$—mean subunit cost in base period.

$\overline{X}^*$— mean subunit cost in test period.

Table 46.—Prediction base and test period means of cost of care (in dollars) by class of characteristics, employing combinations of problem, parental unit and functioning intelligence

Characteristics [1]			Base period		Test period	
Problem of child and family	Parental unit	Functioning intelligence	Cost	Number units	Cost	Number units
Aggressive delinquent or disturbed pre-adolescent	Incomplete	Low	$204.85	20	$162.15	40
Aggressive delinquent or disturbed pre-adolescent	Complete	High	197.13	24	145.18	52
Aggressive delinquent or disturbed pre-adolescent	Complete	Low	191.97	29	157.34	57
Severely disturbed adolescent	None	Low	164.67	3	117.10	5
Severely disturbed adolescent	Incomplete	High	163.72	18	118.14	17
Aggressive delinquent or disturbed pre-adolescent	None	Low	161.80	10	171.61	9
Severely disturbed adolescent	Complete	Low	147.60	10	118.99	24
Aggressive delinquent or disturbed pre-adolescent	Incomplete	High	145.83	12	129.16	33
Disrupted familial situation	Complete	Low	143.73	30	112.46	55
Disrupted familial situation	Incomplete	Low	131.74	70	120.39	121
Severely disturbed adolescent	Incomplete	Low	126.76	17	119.27	27
Disrupted familial situation	None	Low	120.34	29	103.22	48
Disrupted familial situation	None	High	118.86	28	101.93	32
Disrupted familial situation	Incomplete	High	117.68	31	102.10	60
Disrupted familial situation	Complete	High	116.00	27	103.15	26
Aggressive delinquent or disturbed pre-adolescent	None	High	115.00	2	99.00	4
Severely disturbed adolescent	None	High	96.50	6	95.16	9
Severely disturbed adolescent	Complete	High	....	0	....	0
Total			144.20	366	123.60	619

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[1] For descriptions of characteristics see chapter D.

Procedure III: The Use of Seven Characteristics to Forecast Cost of a Subunit of Service.

In procedure III, cost of seven characteristics was determined and weights were assigned for possession of given characteristics. The result was then correlated with the sum of 100 actual costs of subunits in the base period and tested on 200 costs in the test period, both sets of costs being selected at random.[12]

The seven characteristics chosen showed high index values, were easily obtainable and have wide application. They were:

	Index value
1. Problem of child and family	14.33
2. Parental unit	7.14
3. Problem of child	5.71
4. Functioning intelligence	5.47
5. Social class	4.69
6. Problem as perceived at intake	4.66
7. Age	4.19

Using these seven characteristics to provide weights that are related to cost, a 9 percent reduction in error was achieved over the assumption of equal costs for all units.

Comparison of Procedures I, II, III

Which of the three procedures for predicting cost will be most satisfactory? To answer this question, let us first compare results.

Improvement in prediction produced by the three procedures was as follows:

Procedure I—produced an improvement over the population mean alone of 26.7 percent.
Procedure II—improved prediction by 32.3 percent.
Procedure III—improved prediction by 9.3 percent.

Procedure III may be excluded immediately. It is not as productive as the others—and far more tedious.

Of the two remaining methods, one—the first—seems very useful as a rough guide to cost. It requires assessment of cost in relation to only one characteristic and a simple six-class grouping. Due to the small number of classes, the predictive base need not include many cases, and prediction from the base involves no more than an assumption that the mean of a class is a good predictor of cost for each unit belonging in that class.

Procedure II gives somewhat greater accuracy but requires more detailed work. About three times as many classes must be used and the number of units must be increased substantially. Choice between procedures I and II depends on how *immediately compelling* it is to have the additional 6 percent reduction in error.

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[12] More detailed explanation of this procedure may be found in appendix.

However there is another, considerably more compelling reason for retaining a refined classification (although it may not necessarily be the one employed in procedure II), and that is "differential diagnosis" and its concomitant of "differential treatment." If differential diagnosis and differential treatment do indeed mean something, then a classification which includes problem of child and family, parental unit structure, and functioning intelligence of the child may be expected to discriminate markedly between treatment procedures and between costs. For maximal differentiation the classes of problem will have to become more specific, the types of treatment will have to become more differentiated, and the treatment and problem more intentionally and more specifically related to one another.

Precise definition of problem and its prescribed treatment are surely in the future. In the meantime, institutional operation, as much of social work elsewhere, is based on a general perception of problem and an even more general view of service patterns appropriate for the problem. Within such a general framework inclinations of staff, seasonal factors, administrative decisions, parental influence and predispositions of individual children produce marked unit-to-unit variation. A further reduction of predictive error will occur when these "chance" factors are minimized and problem, along with other characteristics, is classified more rigorously.

Summary

Characteristics of children which relate to the time investment of staff categories and to cost of subunits may be variously combined to give the most error-reducing predictive procedure.

Three procedures have been explored and all produced some reductions in predictive error. Procedure I consisted of a six-class breakdown of a single characteristic—problem of child and family—with the mean cost of a three-month base period for each class serving as the predicted cost for all units in that class during a subsequent test period. Error reduction over predictions based on the overall mean for all units, without regard to characteristics, was 26.7 percent.

Procedure II added two variables to procedure I: parental unit structure, and functioning intelligence of the child. Introduction of these variables required the use of 17 classes and reduced predictive error by 32.3 percent over predictions based solely on the mean per subunit cost of the entire population.

Procedure III involved the selection of seven highly differentiating characteristics. It proved to be a tedious process that did not produce results to warrant its use. Improvement over predictions from the mean was 9 percent, considerably lower than improvement obtained by procedures I and II, both considerably simpler.

Prediction of cost based on characteristics of children is less error-laden than prediction based on means alone. Moderate success in reducing error may be largely attributed to the practice of differential diagnosis and treatment, which is gradually penetrating institutions once entirely devoted to custodial care of children without regard to their differing characteristics.

On the basis of moderate predictive improvements achieved by the introduction of children's characteristics, there is good reason to believe that further improvement in prediction can be achieved as more precise statements of children's problems and prescribed courses of treatment are developed.

F. STAFF ACTIVITY AND THE COST OF CARE

As we have previously seen, the costs of completing different work units of service in the institution vary markedly. Differences appear in the time required from each category of staff and also in the total cost. In work unit 5 (treatment), for example, subunit costs (that is, costs of providing a full month's treatment for a child) runs from approximately $60 to approximately $480. While these figures are, of course, extremes, they show the possible range. Moreover, when they are compared with the widest range of means of intervals produced by considering relationship of cost to children's characteristics ($95–$205), it appears that the entire variation has not been accounted for by children's characteristics alone. Another variable which may be entering here is the characteristics of staff.

Again, as with characteristics of children, there is an extreme dearth of knowledge about the relationship between a staff member's training, experience, rated effectiveness of performance, and the time and dollar cost of his service. The absence of such information is explicable. To make sense, such data must be obtained in a uniform setting, with similar cases and reasonably similar objectives. Also, there is need for some standard measure of *quality*, in addition to *quantity* of operations.

The institution studied provided the necessary single setting and considerable quality control through the supervisory process. The control was not absolute, however, nor was there matching of case-loads beyond a possible assumption that they would be similar because of chance variations.[1] Within these limits an analysis of staff operation was undertaken for clues as to relationships between characteristics of staff, work patterns, and cost of care.

Four categories of staff kept records showing what they were doing and with whom. Three of these staff categories were clinical: social work, psychiatry, psychology. The fourth was the key staff category of residential care—cottage parents. Each of these categories has unique functions and within each, specific patterns of operation may be observed. Cottage parent activity will be discussed first; then, briefly, psychiatrist and psychologist activity and, more extensively, social work activity.

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[1] This assumption was not warranted. See p. 285.

Cottage Parent Staff

"Of the staff, the houseparents are the hub of the institutional wheel." [2] "The psychiatrist, the caseworker, and the psychologist are experts in their respective areas. The houseparents, on the other hand, while not specialists * * * must know something in many areas and also must know when to call on the experts. Moreover, since children who come to the institution need treatment, and since it is felt that this treatment can best be given through a group living experience in the institution, the houseparent's function goes far beyond dispensing food, shelter, and clothing to the child, and becomes that of the group leader." [3] In accordance with this definition of cottage parents' functions, it may be expected that their time will be spent largely in dealing with individuals or groups in the cottage.

Cottage parents' activity was classified according to its purposes, as follows:

1. Counseling and supervisory functions of the cottage parent in relation to children as a cottage group:

   Activities such as supervision of children at mealtimes, inspection of children to determine medical status, or merely being with the children. Also included: conferences, meetings, and other activities in behalf of cottage population as a group.

2. Individualization:

   All activities whose primary object is to attend to the child as an individual or as a member of a group of less than four children; conferences with individual children, shopping trips for individuals or small groups, settling arguments, help with homework, discipline when it is not imposed on the cottage as a whole. Also included: conferences with adults, interviews, other activities in behalf of individual children.

3. Household maintenance:

   All activities dealing with the maintenance of the cottage as a physical plant. Requisitions for foodstuffs, repairs, laundry, cleaning supplies, etc. as well as preparation of meals, decoration of the cottage (unless done by the children, when the classification becomes counseling or individualization).

4. Miscellaneous:

   Activities not included in the categories above.

With whom does the cottage parent spend his time? A very high proportion of cottage parents' time (93.7 percent) is spent directly with the children, and another half of one percent (0.5 percent) with the children's parents. When time spent with other staff in meetings, conferences and supervision (2.7 percent), is added to time spent with children, the balance remains for any solitary activity such as recording, reporting and the like. 3.1 percent of the cottage parent's time on duty is reported as spent alone.

Activity patterns of cottage parents may also be related to their characteristics. In this study one characteristic—supervisory rating—has been so related. The cottage parents' supervisor was asked to rate general performance of his staff on a 5-point scale from very high to very low. In all, ratings were obtained for 41 cottage parents who were on the staff of the institution at some time during the study period. The ratings were as follows:

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[2] New York Jewish Child Care Council: *Who Does What in a Children's Institution,* New York; Child Welfare League of America, March 1955, p. 8.

[3] Mayer, in Schulze, *op. cit.*, p. 98.

Rating	Cottage Parents	
	Number	Percent
Very high	3	7.3
High	10	24.4
Average-adequate	16	39.0
Low	11	26.9
Very low	1	2.4

This category of staff was then divided into two groups—the 29 with ratings of average-adequate and higher and the 12 with ratings of low or very low. The two groups were compared for their activity patterns. They were found to differ markedly in the proportion of time given to counseling and individualization. Cottage parents with low ratings offered a much higher proportion of counseling service than those with high ratings, and a correspondingly lower proportion of individualization.[4] Low rated cottage parents seemed to "hide in the group" as one houseparent has phrased it. It seems easier for them to work with the group as a whole, not singling out any one of the children for specific attention. They seem to misinterpret their role as *group* leader to mean that attention to *individual* needs is out of bounds.

Table 47.—Activities of cottage parents in percent of time invested in each activity

Activity	Percent	Minutes
Counseling-supervisory	66.7	....
Individualization	29.3	....
Household	2.8	....
Miscellaneous	1.2	....
Total	100.0	777,821

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[4] A random sample of six cottage parents was chosen from each group and the means and standard error for counseling were computed. Means: high group 12,240 minutes, low group 15,258, standard error of the difference $(\sigma_{\bar{x}_1-\bar{x}_2})$=927. The difference is significant at the .05 level.

Table 48.—Activity pattern of cottage parents by the supervisory rating of their effectiveness (percentage of total time invested in given activity)

Rating	Activity				Total time in minutes
	Counseling	Individualization	Household	Miscellaneous	
High	64.9	31.3	2.6	1.2	560,032
Low	71.3	24.1	3.2	1.4	217,789
All ratings	66.7	29.3	2.8	1.2	777,821

Also, low-raters appear to spend a higher proportion of their time than high-raters in "household" activities which do not involve children as participants or direct recipients. While both the absolute and percentage differences between the low and high rated houseparents in this activity are small, they may provide further indication that a low rating in a cottage parent tends to correlate with less attention to children as individuals.

Subjectively, the ratings seem to reflect an agency judgment that while it is both desirable and necessary that most of a cottage parent's time be spent with the group as a whole, nevertheless the good cottage parent will so manipulate his activity in the group and in the household as to permit considerable work with individual children.

Psychology Staff

During the study period there were two full-time psychologists employed in the institution. One, functioning largely in the remedial education program, was employed shortly before the study ended, and has not been included in this analysis. The other, functioning largely in psychometrics, was active throughout the study period and has been included.

Table 49 shows that the psychologist's functions in this setting are of a nontreating, testing nature. More than 70 percent of the psychologist's time is spent in solitary activity. Nearly 80 percent is invested in the preparation, administration and evaluation of tests. A small portion is spent in remedial education (8 percent) and in conferences with children, institutional staff or others (9.3 percent).

Table 49 also indicates that the psychologist is very isolated from the institution except for contacts with the social service staff.

Table 49.—Activity pattern of psychologist in minutes and percent

Activity with—	Activity					Total	
	Test [a]	Conference [b]	Telephone [c]	Remedial [d]	Miscellaneous [e]	Minutes	Percent
Child	6, 285	698	5	2, 100	505	9, 593	19. 57
Social service staff (including psychiatrists)	8	2, 793	601	0	10	3, 412	6. 96
Other institutional staff	3	380	53	0	0	436	. 89
Persons outside of institution	18	190	690	130	15	1, 043	2. 13
None	31, 656	[f] 510	[f] 23	1, 677	509	34, 375	70. 13
Total minutes	37, 970	4, 571	1, 372	3, 907	1, 039	48, 859	100. 00
Total percent	77. 46	9. 32	2. 80	7. 97	2. 12	100. 00	....

[a] Includes preparation, administration, evaluation and recording of tests.

[b] Includes any conference or interview, other than testing, held by the psychologist as part of his job.

[c] Includes any telephone call pertaining to his job whether he initiates or receives it.

[d] Remedial education functions with teachers or children.

[e] Includes miscellaneous office work such as statistical reporting, correspondence, and other activity not included in above categories.

[f] Telephone calls and conferences with "none" are either preparations for calls or conferences, or else time spent waiting for a call to go through or a conference to begin. All waiting time for other activities is included in the recording of each activity unless the waiting period was used for some other activity.

Psychiatric Staff

During the study period five psychiatrists put in a total of some 1,550 hours, chargeable to work units.[5] No attempt has been made to view the activity of each of the five psychiatrists[6] individually. Jointly they show heavy involvement in treatment and conferences, as might be expected. They also show considerable investment in recording.

The psychiatrists' contacts in the institution are almost entirely with children (59 percent) and social service staff (14 percent). There is no appreciable contact with other institutional staff, but the psychiatrists' rate of contact with social service staff is markedly higher than the psychologist's. Other features of psychiatrists' activity may be noted in table 50. Due to the small number of individuals involved, no attempt has been made to analyze activity patterns as they relate to characteristics of the staff members.

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[5] This is not the total available psychiatric time, some of which remains uncharged to units (indicating that psychiatrists give some time to problems not *directly* related to individual cases), but it is a substantial amount and may be analyzed for activity pattern.

[6] Two of the psychiatrists were residents who were at the institution at different times. The other three are regularly on the staff.

Table 50.—Activity pattern of psychiatrists in minutes and percent

Activity with—	Activity				Total	
	Treatment [a]	Conference [b]	Recording [c]	Miscellaneous [d]	Minutes	Percent
Child	54,313	0	0	66	54,379	58.73
Social service staff	[e] 5	12,706	0	10	12,721	13.73
Other institutional staff	0	406	[f] 10	5	421	.45
Persons outside of institution	[e] 20	595	0	15	630	.68
None	1,875	10	21,158	1,426	24,469	26.41
Total minutes	56,213	13,717	21,168	1,522	92,620	100.00
Total percent	60.70	14.81	22.85	1.64	100.00	....

[a] Includes all forms of activity with the patient which is intended to have therapeutic effects. This category also includes contacts for purposes of diagnosis.

[b] Includes all conferences and interviews with staff or other persons except those intended to have a direct therapeutic effect. Staff meetings and case conferences are included in this category.

[c] Includes preparation, dictation and proofing of records.

[d] Includes miscellaneous office activity such as statistical reporting, correspondence and telephoning.

[e] Treatment with staff is probably a recording error. Treatment with persons outside the institution probably involved parents.

[f] Recording with staff is an error in the data.

Social Work Staff

Social workers were expected to contribute more detail than any of the other staff categories maintaining time records. Their recording required a breakdown by twelve categories of activities and ten categories of persons with whom activity had taken place.[7]

Social workers in the institution under study, as in many other children's institutions, assume responsibility for the integration of the child's treatment by the various staff categories and alignment of treatment with the child's needs. "It is the caseworker who guides the treatment . . ." [8] to quote Lourie. But he not only guides, he often largely determines who shall come and who shall go, who shall be referred for consideration by psychiatry, psychology or remedial education, who shall receive special attention in the cottage, activities, or in the medical-dental clinic. To the extent to which he makes such recommendations and communicates them, the social worker is the key person in the case.[9]

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[7] One of the considerations that prompted such detailed description and subsequent detailed analysis of social work activity is the existence of other materials on time investments of social service staff by category of activity. Although these other materials were obtained for different settings than the institution studied, some comparison may be meaningful. (See Alan Keith-Lucas: "A Time Study: Its Use in a Child Care Agency," *Child Welfare League Bulletin* 13: 1–7 March, 1944; John G. Hill and Ralph Ormsby: "The Philadelphia Cost Study," *Social Work Journal* XXXIV No. 4 1953; Ernest Greenwood: *Time Studies in Social Case Work*. Research Department, Welfare Council of Metropolitan Los Angeles, Pub. No. 7, 1950.)

[8] Lourie, *op. cit.* p. 144.

Thus, the work pattern of social workers is likely to be of consequence not only in the cost of providing social work service to the child but also in providing most or all other care and treatment services. What is this work pattern and how does it relate to characteristics of workers? How do these in turn relate to the cost of care and treatment?

Since no previous framework for defining staff characteristics was found and none could be devised within the limits of this research, those selected were ones which seemed reasonable on an impressionistic basis. They were: sex, age, years of professional education, professional experience, and supervisory rating.

Professional education was nearly identical for all caseworkers. All had the minimum required education for employment in the institution (MSW degree), none had more. Professional experience correlated highly with the supervisory ratings so that the two characteristics may be used interchangeably. Sex and age both correlated quite highly with experience. The female workers were the older and the more experienced. Analysis, then, has been reduced to the relation of experience or supervisory rating to activity and cost.

Excluding the two staff groups with supervisory responsibility, there is a constant increase of time invested with the child, from the lowest proportion for student workers to the highest for experienced workers. Paralleling this increase is the proportion of time spent alone: lowest for the most experienced workers and highest for students. Similarly, when experience is related to activities of a directly effective nature (telephone call, home visit, interview, etc.) as compared with those of a preparatory and supportive nature (recording, planning, correspondence, etc.), the experienced workers have a considerably higher proportion (73.2 percent) of the direct activities than do the inexperienced workers (65.7 percent) or students (58.0 percent).[10]

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[9] Such activity on the part of the caseworker may be expected to be closely tied into the overall cost of care, and this has been shown to be the case. Social work time investment for children of various characteristics has been shown to relate to the cost of care and treatment of those children. See p. 257 for correlation of social work time and cost of care.

[10] These findings directly support Keith-Lucas's research-based assertion that workers with highest ratings (in this study ratings and experience happen to have a high positive correlation) spend most time in direct work with clients and least time in supportive work such as dictation and other desk work. Keith-Lucas, *op. cit.* pp. 1–7.

In the aggregate, when all levels of experience are considered jointly, time statistics in the present study show that experienced workers spend 53.6 percent of their time with clients (children, parents and relatives), inexperienced workers 42.6 percent, and students 41.4 percent. Further, caseworkers with some supervisory functions spend 32.2 percent of their time with clients, and supervisors 6.9 percent. The combined proportion for all caseworkers and supervisors is approximately 43 percent.[11]

A social worker's experience, then, tends to be related to the proportion of time invested in direct work with clients and in supportive activity. The more experienced the worker (if he does not carry supervisory functions in addition to casework functions), the higher a proportion of direct activity he is likely to show. All other things being equal, the more such effective work there is, the less total time a unit of work should require.

Table 51.—Activity pattern by experience level of casework staff

Activity	Supervisors percent of total time	Caseworkers with supervisory functions percent of total time	Experienced workers (2½–6 years) percent of total time	Beginning workers (0–2 years) percent of total time	Students percent of total time
1. Telephone call	2.90	6.30	9.43	8.57	3.86
2. Home visit	0	....	....	0.03	....
3. Office interview or conference	4.12	35.52	60.78	55.14	52.18
4. Visits to other places	0.33	2.63	2.97	1.93	1.97
5. Travel	1.30	2.35	1.34	1.41	0.85
6. Case recording	0.44	6.35	9.90	14.36	28.15
7. Correspondence and reports	1.39	6.44	7.90	9.04	6.02
8. Planning for conferences	0.20	0.86	1.67	5.78	5.15
9. Other planning and preparation	0.08	14.13	5.05	3.67	1.56
10. Miscellaneous	0.12	0.12	0.96	0.07	0.26
X. Supervisory conference	55.03	6.30	....	....	....
Y. Other supervisory activities	34.09	19.00	....	....	....
Total time in minutes	50,433	195,272	163,100	108,095	34,296

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[11] The data on time spent directly with clients (children, parents and relatives) are very similar to those of Hill and Ormsby. These authors found that approximately 42 percent of the cost of casework services was assignable to interviewing costs. Where the findings differ from those of Hill and Ormsby is in the time used for preparation and execution of case records. This activity consumes up to 17.7 percent of the time in any work unit (except 8, which is of insignificant consequence costwise) and in most units it hovers around the 10–12 percent level. This is markedly different from the Hill and Ormsby findings which show 32.15 percent of total cost allocated to case recording. Both setting and time may be related to the difference. By its very findings, the Hill and Ormsby study may since have induced a reappraisal of agency case recording customs, leading to reduction of recording costs. See Hill and Ormsby, *op. cit.* p. 168.

Our expectation, then, would be that experienced caseworkers would turn out less expensive units—so far as casework service goes—than inexperienced workers and students. In documenting this expectation there are two factors to consider (aside from characteristics of the children whom the worker serves). These are: the cost of supervising the worker and the cost of the worker himself per time unit. As will be shown, supervisory costs decrease in proportion to the worker's experience but the worker's cost per time unit increases with experience.

Table 52.—Experience level of casework staff and time input by category of person related to the case

Activity with—	Supervisors percent of total time	Caseworkers with supervisory functions percent of total time	Experienced workers (2½–6 years) percent of total time	Beginning workers (0–2 years) percent of total time	Students percent of total time
1. Child	4.57	20.51	35.72	27.03	24.74
2. Parent	1.84	10.66	16.17	17.67	16.39
3. Relative	0.45	1.06	1.76	1.88	0.31
4. Social service	39.73	9.15	7.41	7.87	7.97
5. Cottage parent	2.20	2.24	4.13	3.98	4.28
6. Administration	10.80	2.23	2.29	1.85	1.09
7. Other agency staff	7.55	2.90	3.22	4.35	1.97
8. Other social agencies	2.56	1.73	1.46	0.61	0.45
9. All others	1.94	1.07	0.77	1.04	0.81
10. None	28.36	48.45	27.07	33.72	41.99
Total time in minutes	58,538	201,774	169,999	111,240	35,446

Now, assuming for the present that all workers have similar work units to complete as far as characteristics of children are concerned, what experience level produces the lowest cost unit? Since the amount of residual, unavoidable routine, necessary supervision, and intervention of other social work staff differs from one work unit to the next, the relation of the social workers' experience to the cost of social service in each unit will be considered first and subsequently summarized for all units. Analysis will begin with work unit 2 (preadmission), omitting work unit 1 (intake) for which recording was not adequate.

Work unit 2 (pre-admission)

As might be anticipated in this period when the child is still with parents or foster parents and all concerned are being prepared for his placement, supervision is a high proportion of total cost of social work time. It constitutes 87.4 percent of the cost of student workers' cases (students do not receive a salary), 15.3 percent of the cost of beginning workers' cases, and 8.0 percent of the cost of experienced workers' cases.

The fact is that the average student costs eight times as much to supervise as an experienced worker in the pre-admission work unit.[12] However, since students work without remuneration, these high supervision costs are offset, so that they produce the least expensive pre-admission units, followed, in order of unit cost, by experienced and beginning workers. (See table 53.)

Table 53.—Mean cost of social work in pre-admission by experience of worker responsible for the case

Worker	Number of units	Worker's mean cost per unit	Mean cost of supervision by—		Mean cost of other staff	Total (mean cost per unit)	Mean cost per unit by experience group
			Worker	Experience group			
Student A*	4	....	$17.60	....	$3.45	$21.05	....
Student B	3	....	15.18	$16.56	0.96	16.14	$18.94
Beginning:*							
Worker A	4	$26.07	3.84	....	0.48	30.39	....
Worker B	8	13.54	3.44	....	2.20	19.18	....
Worker C	11	37.15	6.99	5.21	1.74	45.88	33.90
Experienced:*							
Worker A	6	24.67	3.00	....	1.14	28.81	....
Worker B	8	22.65	1.96	....	2.26	26.87	....
Worker C	8	23.35	2.39	....	1.21	26.95	....
Worker D	8	24.12	1.53	2.17	0.51	26.16	[a] 27.09

*Experience groups:
Student—no experience.
Beginning worker—0–2 years experience.
Experienced worker—2½–6 years experience.
NB: Cost of supervision—Students, beginning workers, experienced workers—8:2:1.

[a] The cost of social service as shown here is, in the aggregate, somewhat different from the cost shown for each unit in chapter C. The differences arise from the exclusion from this analysis of cases carried by workers with small caseloads due to other responsibilities or brief service during the study period. Also units or subunits transferred from one worker to another were excluded.

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[12] The supervision ratio of students, beginning workers and experienced workers is 8:2:1.

Work unit 3 (admission)

The procedure for obtaining custody of the child and transferring him to the institution is much the same for all workers and all cases. The major factor in the cost is the workers' rate of pay. There is little or no supervision in this unit and total unit costs by experience groups are lowest for students and highest for experienced staff. (See table 54.)

Table 54.—Mean cost of social work in admission by experience of responsible worker

Worker	Number of units	Worker's mean cost per unit	Mean cost of supervision by—		Mean cost of other staff	Total (mean cost per unit)	Mean cost per unit by experience group
			Worker	Experience group			
Student A	4	....	....	....	....	....	....
Student B	3	....	....	....	....	....	....
Beginning:							
Worker A	4	$5.88	....	....	....	$5.88	....
Worker B	7	5.93	....	....	....	5.93	....
Worker C	9	14.85	....	....	....	14.85	$9.93
Experienced:							
Worker A	5	10.37	....	....	....	10.37	....
Worker B	6	12.68	$0.36	....	....	13.04	....
Worker C	9	8.76	....	....	....	8.76	....
Worker D	7	10.92	....	....	....	10.92	10.57

Work unit 4 (institutional adjustment)

In this initial period when the child's problem, service needs, capacity for recovery and ultimate return to the family are assessed and action planned accordingly, supervisory activity increases for students and beginners. Supervision of students goes up to 91.4 percent of cost, supervision of beginning workers up to 16.0 percent and supervisory cost of experienced workers goes down to 6.0 percent.

Thus it seems that the experienced worker's relation to the case is already established in pre-admission, while for the student and beginning worker additional time and considerable supervisory effort continue to be required. Overall cost of completing a subunit (a month) of casework service in the institutional adjustment period continues to be lowest for students, and highest for beginning workers. The latter is primarily a result of supervisory costs which are 4 times as high for beginning workers as they are for those with 2½ to 6 years of experience.

Table 55.—Mean cost of social work per subunit (month) of institutional adjustment by experience of responsible worker

Worker	Number of units	Worker's mean cost per unit	Mean cost of suprevision by—		Mean cost of other staff	Total (mean cost per unit)	Mean cost per unit by experience group
			Worker	Experience group			
Student A.........	11	....	$16.79	....	$1.58	$18.37	....
Student B.........	3	....	12.68	$15.91	1.08	13.76	$17.39
Beginning:							
Worker A......	0	....	....	....	....	....	....
Worker B......	4	$26.44	10.29	....	1.44	38.17	....
Worker C......	11	32.83	4.96	6.38	2.74	40.53	39.90
Experienced:							
Worker A......	6	19.38	1.50	....	20.99	41.87	....
Worker B......	10	14.92	1.16	....	.97	18.05	....
Worker C......	8	33.83	2.27	....	.13	36.23	....
Worker D......	11	11.82	.23	1.46	.06	12.11	24.43

NB: Cost of supervision—Students, beginning workers, experienced workers—11:4:1.

Work unit 5 (life adjustment)

In this longest and most expensive period of residential service, lasting until a decision has been made to discharge the child,[13] the cost of completing a subunit (month) of service is now highest for students and lowest for beginning workers. The cost realignment is mostly caused by a marked drop in the ratio of supervisory to total costs.

Student supervision in work unit 5 comprises 96.7 percent of the total casework cost of each subunit. A beginning worker's supervision remains the same as in work unit 4 (15.9 percent), and the experienced worker's supervisory cost goes up slightly to 7.5 percent. In terms of cost, the student receives 14 times as much supervision as the experienced worker and 7 times as much as the beginning worker in relation to a subunit of treatment. While the experienced worker has required most supervision in pre-admission and the beginning worker in the life adjustment unit, the student, receiving much supervision throughout, obtains most of it in relation to work in the treatment unit. (See table 56.)

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[13] The mean duration of the "treatment" period in the institution under study is nearly two and a half years and its cost is obviously the predominant component of the institutional budget. In order to encompass it in the relatively brief study period, this unit, along with units 4, 6, and 7, has been divided into monthly intervals designated as subunits. These subunits are quite numerous. Data are available on 41 subunits completed by students, 394 completed by beginning workers and 683 completed by experienced workers. Chance variations within the experience groups, introduced by specialized demands of specific cases are thus reduced considerably, giving a fairly pure pattern of relative cost of completing a particular operation by each experience group.

Table 56.—Mean cost of social work per subunit (month) of treatment by experience of responsible worker

Worker	Number of units	Worker's mean cost per unit	Mean cost of suprevision by—		Mean cost of other staff	Total (mean cost per unit)	Mean per unit by experience group
			Worker	Experience group			
Student A	20	....	$20.07	....	$0.72	$20.79	....
Student B	21	....	12.52	$16.20	.39	12.91	$16.76
Beginning:							
Worker A	190	$12.44	1.63	....	.69	14.76	....
Worker B	41	8.73	4.31	....	.78	13.82	....
Worker C	163	10.97	2.61	2.31	.65	14.23	14.45
Experienced:							
Worker A	205	11.75	1.22	....	.36	13.33	....
Worker B	176	12.35	1.24	....	.82	14.41	....
Worker C	175	15.38	1.35	....	.86	17.59	....
Worker D	127	17.35	.77	1.18	.76	18.88	15.74

NB: Cost of supervision—Students, beginning workers, experienced workers—14:2:1.

Work unit 6 (discharge)

The period beginning when a discharge decision is made and continuing until the child actually leaves is one of accelerated planning and considerable administrative work. Supervisory activity increases with beginning and experienced workers (18.2 and 9.7 percent, respectively) and drops somewhat for students (92.2 percent of cost). The indications are that the staff feels less concerned with the student's ability to deal with administrative matters than with his ability to carry cases in treatment. Staff may also feel there is more opportunity for teaching during the treatment period.

The somewhat decreased costs of supervision sufficiently reduce the students' per unit costs to place them between the beginning and the experienced workers. Ratio of supervision cost is also considerably less varied than it was in work unit 5. Students carrying cases ready to be discharged receive nine times as much supervision as experienced workers and four and a half times as much as beginning workers. (See table 57.)

Work units 7 and 8 (aftercare and special services to closed cases)

Special services to closed cases, consisting mainly of replies to inquiries regarding such cases, are not of great importance numerically or in cost per case and consequently will not be discussed here.

Table 57.—Mean cost of social work per subunit (month) of discharge by experience of responsible worker

Worker	Number of units	Worker's mean cost per unit	Mean cost of supervision by—		Mean cost of other staff	Total (mean cost per unit)	Mean cost per unit by experience group
			Worker	Experience group			
Student A........	0	....	....	....	....	....	....
Student B.........	5	....	$11.88	$11.88	$1.00	$12.88	$12.88
Beginning:							
Worker A......	13	$7.89	1.00	....	1.21	10.10	....
Worker B......	7	4.71	2.74	....	.86	8.31	....
Worker C......	56	10.11	2.49	2.26	.89	13.49	12.44
Experienced:							
Worker A......	37	14.91	1.92	....	.04	16.87	....
Worker B......	47	8.16	.87	....	1.64	10.67	....
Worker C......	47	12.64	2.13	....	.46	15.23	....
Worker D......	48	12.10	.65	1.36	.93	13.68	13.96

NB: Cost of supervision—Students, beginning workers, experienced workers—9:2:1.

Aftercare, on the other hand, is quite important numerically. The most striking feature about the social work service in this unit is its preemption by experienced workers. One might attribute this situation to the fact that these workers have been with the institution longer and therefore have had more of their cases discharged. However, this supposition is not borne out by present caseloads in work units 5 and 6, especially 6. Experienced workers are responsible for 85.1 percent of all subunits in aftercare, while at the same time their proportion of units in discharge is 68.8 percent.[14]

Why should this be so? Do these more experienced workers have in their caseloads children and families whose problems particularly require aftercare services? Are the more experienced workers more adept at continuing a relationship outside the institution? Or does the agency shift cases to these workers for aftercare service to which they then give a small investment of their own time with little supervision?

The answer to the last question is no. It is against the policy of the agency to shift cases from one worker to another when shifts are avoidable. What may be more likely is that the more experienced workers carry a somewhat different caseload from the beginners and show more skill in sustaining a relationship beyond the discharge period. The study has not produced data that may be used in testing the premise of a relationship between experience of a worker and his

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[14] This difference is significant.

Table 58.—Mean cost of social work per subunit (month) of aftercare by experience of responsible worker

Worker	Number of units	Worker's mean cost per unit	Mean cost of supervision by—		Mean cost of other staff	Total (mean cost per unit)	Mean cost per unit by experience group
			Worker	Experience group			
Student A........	0	....	....	....	....	....	....
Student B........	0	....	....	....	....	....	....
Beginning:							
Worker A......	6	$9.91	$0.48	....	....	$10.39	....
Worker B......	0	....	....	....	....	....	....
Worker C......	4	4.59	1.20	$0.77	....	5.79	$8.55
Experienced:							
Worker A......	8	8.97	.59	....	$0.09	9.65	....
Worker B......	17	14.74	.19	....	.08	15.01	....
Worker C......	10	9.19	.32	....	.22	9.73	....
Worker D......	22	14.17	.98	.58	.49	15.64	13.57

NB: Cost of supervision—Beginning workers, experienced workers—1.3:1.

Table 59.—Mean cost of social work per unit of special services by experience of responsible worker

Worker	Number of units	Worker's mean cost per unit	Mean cost of supervision by—		Mean cost of other staff	Total (mean cost per unit)	Mean cost per unit by experience group
			Worker	Experience group			
Student A........	0	....	....	....	....	....	....
Student B........	0	....	....	....	....	....	....
Beginning:							
Worker A......	2	$12.18	$0.72	....	....	$12.90	....
Worker B......	0	....	....	....	....	....	....
Worker C......	8	2.25	.35	$0.43	....	2.60	$4.66
Experienced:							
Worker A......	10	2.48	....	....	....	2.48	....
Worker B......	11	3.13	....	....	$0.05	3.18	....
Worker C......	5	.98	.58	....	....	1.56	....
Worker D......	8	4.17	.18	.33	....	4.35	3.01

NB: Cost of Supervision—Beginning workers, experienced workers—1.3:1.

ability to sustain casework service under such essentially adverse conditions as aftercare.[15] Data have been developed, however, relating characteristics of cases to the caseworkers to whom they are assigned and this information reveals that more difficult and more costly cases are assigned to experienced workers than to beginners.

Mean cost for all units

A mean cost computed over all units and subunits from pre-admission to aftercare and service to closed cases is the same for all three experience levels.

This artifically developed overall unit varies only 1 percent in cost when produced by the least expensive beginning workers or the costliest experienced workers. Such a variation is for all practical purposes nonexistent.

However, the following considerations indicate that it would be incorrect to say that for *any given unit* of cost, students, beginning workers and experienced staff are equally *productive.*

First, there is the matter of quality. While workers of every level of experience completed admissions, months of treatment or discharge, and while the cost per unit when all units are considered was the same for all groups, the quality of the work may not have been the same. Both quality of work and result of service would have to be evaluated before an assertion could be made that beginners and experienced staff are equally productive.

Secondly, the caseloads of workers are related to their experience and, by implication, to their rated effectiveness.[16] When caseloads are considered in relation to problem of child and family, it becomes clear that more difficult (more costly) cases are much more likely to be found in the caseloads of workers rated high or very high than in the caseloads of the average-adequate workers. For example, the aggressive or seriously disturbed pre-adolescent child (the most expensive of all categories in the "problem of child and family" classification) is twice as likely to be assigned to workers rated high or very high as to workers rated adequate.

Experience, or rated effectiveness, is, then, related to the cost of care. Carrying more difficult cases—which receive more casework time than most of those carried by the less experienced (lower rated) workers (see table 61)—the more experienced worker is nevertheless able to complete work units for the same cost as the beginning worker, or the student, even though the beginner costs less per minute and the

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[15] A credible assumption in the profession is that a high positive correlation exists between these variables.

[16] Experience and rated effectiveness correlate quite highly ($r_s = .82$ $N = 7$ $P < .05$ See Siegel, *op. cit.*, p. 284).

Table 60.—Mean cost of social work per unit and subunit by experience of responsible worker

Work unit or subunit	Student		Beginning worker			Experienced worker			
	A	B	A	B	C	A	B	C	D
Pre-admission (2)	$21.05	$16.14	$30.39	$19.18	$45.88	$28.81	$26.87	$26.95	$26.16
Admission (3)	......	......	5.88	5.93	14.85	10.37	13.04	8.76	10.92
Instit. adjustment (4)	18.37	13.76	......	38.17	40.53	41.87	18.05	36.23	12.11
Treatment (5)	20.79	12.91	14.76	13.82	14.23	13.34	14.41	17.59	18.88
Discharge (6)	......	12.88	10.10	8.31	13.49	16.87	10.67	15.23	13.67
Aftercare (7)	......	......	10.38	......	5.79	9.65	15.01	9.73	15.64
Special services (8)	......	......	12.90	......	2.61	2.48	3.18	1.56	4.35

Combined mean per unit cost (overall work units and subunits) by experience group:

Experience group	*Combined mean cost per unit*
Students (no experience)	$15.24
Beginning workers (0–2 yrs. exp.)	15.23
Experienced workers (2½–6 yrs. exp.)	15.39

Table 61.—Percent distribution of treatment subunits with specific problems by effectiveness rating of worker [1]

Type of problem of child and family

	Aggressive delinquent, seriously disturbed pre-adolescent	Seriously disturbed adolescent	Unadjusted, disrupted family	Total subunits	
				No.	Percent
Mean cost per subunit	$150.00	$136.00	$115.00	....	....
Worker's rating:					
Very high	38.2	19.3	42.5	367	100.0
High	33.0	10.8	56.2	572	100.0
Average-adequate	17.0	8.3	74.7	265	100.0
Students (not rated)	20.0	23.3	56.7	60	100.0
				[2] 1,264	

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[1] $X^2 = 76.1$; df equals 6; $P < .001$.

[2] 7 subunits could not be assigned to a given worker.

student costs the agency nothing at all in salary.[17] The experienced worker apparently invests time more effectively than his less experienced colleague, who requires considerable supervision and spends much time in preparation for conferences, recording and other supportive, not immediately productive, activity (see table 51).

Additional material on the operations of highly rated caseworkers is found in the relationship of overall cost of care and treatment of cases and their assignment to workers in each of the three effectiveness levels.

Table 62.—Effectiveness rating of caseworker and care and treatment cost of treatment subunits in his caseload [1]

Effectiveness	Subunits	
	Number	Mean cost
Very high	367	$140
High	572	120
Average-adequate	265	121

[1] Student subunits (N=60) excluded. Difference between mean cost of units served by very high effectiveness group and those served by high and average-adequate staff is significant at the .05 level.

Caseworkers rating very high for effectiveness have completed subunits (in work unit 5) with a mean cost of care and treatment of $140, considerably higher than the unit cost of cases carried by workers rated high and adequate. Since the social work cost per unit has previously been shown to be nearly identical for all ratings,[18] the difference in cost must arise out of services by *other* staff categories. This finding is subject to two possible interpretations:

1. The more effective worker is assigned more difficult cases. While *he* is able to serve them at no special additional cost to the agency, *other* services cannot. *Total* care and treatment costs thus become higher for these cases, even though they are not higher in social work.

or

2. The more effective worker is able to carry his difficult cases at no extra cost because he uses his skill not only in serving the case directly but also in enlisting *more* service from other staff categories than is obtained by less effective workers.

Sufficient evidence to support either conclusion as against the other was not uncovered by this study.

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[17] Students do cost something in office space, but this has not been included in per minute cost since it was too small to be reflected in a one decimal expression.

[18] Subunit in work unit 5 is $14.45 for beginning workers and $15.74 for experienced workers.

Summary

Marked variations in cost which appear from case to case cannot be accounted for merely by different characteristics of children under care. It is therefore reasonable to assume that some of the cost differences are related to staff characteristics as well as to general patterns of staff operation.

This chapter has examined activity patterns of four categories of staff: cottage parents, psychologist, psychiatrists and social workers. There were enough cottage parents and social workers to permit an analysis of whether their activity was or was not related to their effectiveness in performance as rated by supervisors. For the other two staff categories—psychiatrists and psychologist—only brief descriptions of activity are given.

Psychiatrists were found to devote their time largely to treatment and conferences, as might be expected from their function as therapists and consultants. Their proportion of time in contact with children and social service staff is high; in contact with other staff in the institution, quite low. The one psychologist whose activity was studied in this research is involved mainly in psychometrics. He spends most of his time alone, preparing and evaluating test materials. Only one-fifth of his time is spent with children and only about seven percent with social service staff. He has almost no contact with other institutional staff.

Cottage staff were found to function largely with children. Counseling-supervision—that is, work with or in behalf of the whole cottage group or part of it—absorbs two-thirds of the houseparents' time. Individualization—activity with or in behalf of an individual child—consumes another 30 percent. The remaining 3 to 4 percent of time is devoted to maintenance of the cottage as a physical plant and to other activity not covered by the three categories listed.

When the activity pattern of cottage parents is related to their performance ratings as provided by the cottage parent supervisor, it becomes evident that the institution places a high value on individualization in the cottage. House parents with high effectiveness ratings engage in less counseling and more individualization than those with low ratings. Institutional staff convey the impression that houseparents who succeed in greater individualization are able to serve more children more effectively, but no test of this impression has been undertaken.

Social work activity in the institution has been found to relate to both experience and performance rating of the workers. Those with more experience (and they are also rated high in performance) spend more time in direct work with their cases and considerably less time alone than do beginners or students. Also the proportion of time spent by experienced workers in activities such as conferences, home visits and interviews is considerably higher than among the low experience group, who spend a high proportion of time in such preparatory and supportive activities as recording, planning and correspondence.

Although the more experienced workers are paid more and although their caseloads include more difficult cases, their per unit cost is no higher than that of less experienced staff. *One reason is that their supervisory cost is lower.*

While there is some fluctuation in the ratio of supervision received by experienced, beginning and student staff from one work unit to the next, the ratio in the longest and most expensive work unit (treatment) is a good indication of supervisory demands in each experience level. In this unit for every dollar of supervision received by experienced staff, beginners receive two and students fourteen.

Thus, even without considering effectiveness, which is generally assumed to be greater for experienced staff, the worker with most experience seems to be the one who is able to carry the social work functions at least expense.

While these findings indicate the economy of employing experienced staff, they do not lead to the conclusion that only such staff should be engaged. The agency's functions are, after all, not only service to clientele, but also to the community. Training of students and development of staff is a basic community service. The future supply of experienced staff can result only from present employment of students and inexperienced workers.

I

APPENDIX ON METHODOLOGY

A. Method of Study

The purpose of this study was twofold: [1]

1. The production and testing of a procedure for measuring and predicting cost for children in institutions.
2. Gathering data on which to base decisions as to the value of the method and ways of simplifying it for practical use without appreciably reducing its effectiveness.

What are the methodological requirements for fulfilling this twofold purpose?

First, any procedure for measuring cost of care must identify some units of care, such as tasks, phases or services, some measure of time involved in performing the tasks, and some measure of the cost of performing them.

Secondly, data required for simplification of the method must demonstrate the predictive ability of the procedures. They must show whether procedures measure cost of a unit of service either in time or money with sufficient reliability to permit prediction from one relatively small time interval to another. They must also show whether use has been made of characteristics of children and staff as these may relate to time applied by staff with different characteristics to cases with different characteristics.

Specifically, the requirements are as follows:

1. A description of the service and its component units, defining their boundaries and relationships.
2. A procedure for determining the costs of completing a unit of work. These costs may have to be computed in terms of:
   a. Time investment of certain categories of personnel;
   b. Some general *per diem* costs of maintaining any child in the institution;
   c. Some items of cost charged specifically to individual children.
3. A procedure for testing the predictive ability of the method, using a relatively small time sample.
4. A statement regarding the possible relationship of children's and staff's characteristics to cost of care, with provisions for determining relationships between characteristics and cost.

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[1] As the study developed, it evolved a third tangential purpose—that of producing certain kinds of cost data. Although the third objective should be considered in viewing the method described here, it did not in any way influence the procedures being developed.

1. The Service and Its Components

The purposes and actual procedures of care in the institution under study are described in chapter B. To fulfill its purpose of care and treatment, the institution uses goods, services and staff, organized to permit a modifiable yet quite stable routine of daily operation and case processing. While all staff operations, goods and contracted services supplied to the institution enter into care of the individual child and cost of his care, only some facilities can be related to this cost on a direct, individual basis. Most direct costs result from the operations of child care and treatment staff, that is, those performing services tailored to the needs of individual children, and therefore chargeable to them. Included in care and treatment staff are cottage parents, social workers, psychiatrists, resident supervisors,[2] medical-dental personnel, remedial teachers, activity workers, psychologists, and clerical staff used by any of the above categories. Other persons, goods and services are vital only in enabling the care and treatment staff to carry out the purposes of the institution.

Service units

Operations of the staff providing child care and treatment may be examined on a number of levels. First, on the level of purpose we have the completed end product(s) of the agency.[3] These may be labeled *service units*. They cover the full range of agency services to a case from the beginning (screening) to the end (aftercare).

The agency, of which the institution studied is a part, provides a variety of foster care programs. Some of these place children in homes, others in institutions. In the institutional program, the service unit consists of placing one child in the institution after determining suitability of service and the child's eligibility for it, then supplying maintenance and treatment, then making appropriate discharge arrangements.

Work units

Although institutional operation is intended to produce service units, staff functions in specific cases are largely confined to phases of the total service process. These phases, designated as *work units*, have an advantage for research purposes, since they are more limited in extent than the service units.

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[2] These include the assistant director and the supervisors of cottage parents, activities, and children.

[3] For a discussion of units of count and their measurement, see the preceding report on Adoption and Foster Home Costs by Edward E. Schwartz, chapter IV.

While an institution may complete few if any full service units within a budgetary period, it may and does complete many work units. The larger number and limited time range of such units adds to ease of measurement and provides for greater homogeneity of cost involved in producing them. Within the total service unit it was possible to identify eight separate work units, ranging from screening to aftercare. These are defined either in terms of the social work operations they involve or the casework judgments required to initiate and complete the service.

Code	*Title*	*Definition*
0	**Screening**	***Begins*** with the initial request for service reaching a social worker in the intake department, and ***ends*** with the formal assignment of the case to a specific worker, with referral to another agency, or with rejection or withdrawal of the case.
1	**Intake**	***Begins*** immediately following the formal assignment of the case to a worker. ***Ends*** with the initial referral of the case to the institution or to another division of the agency, or referral to another agency or some other disposition of the case by the intake department.
2	**Pre-admission**	***Begins*** with the first activity following the referral of the case to the institution. ***Ends*** at the moment when the social worker obtains the physical custody of the child from its parents or guardians, or when some other disposition of the case is made.
3	**Admission**	***Begins*** with the first activity after the physical custody of the child is obtained by the worker. ***Ends*** when the child enters for the first time the cottage to which he is allocated.
4a	**Institutional adjustment (child)**	***Begins*** with the first activity following the child's entry into his cottage. ***Ends*** with the last activity of the worker directly aimed at adjusting the child to separation (usually temporary) from his family and to his stay at the institution. NOTE: The boundaries of this work unit, like those of the others, circumscribe the phase of treatment in which the staff is currently engaged with the child and his family. This specific work unit is terminated when, in the judgment of the worker, the child's adjustment is such that the staff begins using its major effort to prepare the child for leaving the institution.
4b	**Institutional adjustment[4] (family)**	***Begins*** with the first activity following the child's entry into his cottage. ***Ends*** with the last activity of the worker which is directly aimed at adjusting the family to separation (usually temporary) from the child and to the child's stay in the institution.
5a	**Life adjustment (child) "treatment"**	***Begins*** with the first activity of the worker directly aimed at preparing the child for leaving the institution. ***Ends*** with the decision to discharge the child from the institution and return him to his home, to a foster home, to some other institution, etc.

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[4] Work units 4b and 5b were merged with 4a and 5a, respectively, when it was found that only in a very small proportion of cases (less than 5 percent) was there a significant difference in the points when these units began and terminated as compared with the parallel units (4a, 5a) for the child.

Code	*Title*	*Definition*
5b	**Life adjustment[4] (family) "treatment"**	***Begins*** with the first activity of the worker directly aimed at preparing the family for the child's leaving the institution. ***Ends*** with the decision to discharge the child from the institution and return him to his home, to a foster home, to some other institution, etc.
6	**Discharge**	***Begins*** with the first activity after the decision to discharge the child from resident care is made. ***Ends*** with the last activity involved in physical removal of the child from the institution.
7	**Aftercare**	***Begins*** with the first activity after physical removal of the child from the institution. ***Ends*** with institution's withdrawal from the case.
8	**Other services[5]**	These are performed for a *specific case* which does not fit into any of the above work units. In most instances such activity is in behalf of a former case now closed.

A review of the work units, in terms of where they begin and end, shows that they fall into three categories:

1. Those units for which both beginning and ending are stated in terms of specific operations; screening, intake, pre-admission, admission and aftercare (work units 0, 1, 2, 3, 7) are in this category. There were no intra-staff disagreements as to the position of a case in any of these units.
2. Those units where *either* the beginning *or* the ending point is stated in terms of a specific operation but where the *other* boundary is defined by the caseworker in terms of the immediate objective of his operation. Included are the institutional adjustment unit (4) and the discharge unit (6), although the latter has a considerably more objective definition that the former.
3. Work unit 5, life adjustment, has *both* boundaries defined in terms of the caseworker's judgment.

Assignment of a case to a specific work unit was always made by the caseworker responsible for the case. All assignments, but especially those made to work units 4, 5, and 6, were subject to supervisory review. Most of the disagreements between workers and supervisors over the position of a case occurred in regard to work unit 5. Some resulted when a worker had information on the case which had not yet been recorded or otherwise shared with the supervisor. Other disagreements were based on differing views of the case. All differences were adjudicated in the supervisory conference, thus providing the study with a single work unit position for each case at any given time.

Work units 4, 5, 6, and 7 were extensive in duration, yet could not be further subdivided by operational boundaries. Therefore, it seemed most productive to break them down by time, rather than operation, that is, by a month of care, thus forming *subunits* or months of 4, 5, 6, and 7.

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[4] Work units 4b and 5b were merged with 4a and 5a, respectively, when it was found that only in a very small proportion of cases (less than 5 percent) was there a significant difference in the points when these units began and terminated as compared with the parallel units (4a, 5a) for the child.

[5] Work unit 8 differs from the others in that it does not fall within the screening-aftercare continuum, affects only a small number of cases and is expected to show greater variability than the other work units.

Activity units

Activity patterns of workers are perceivable operations performed in behalf of children. Designated as *activity units*, these are what the institution buys with its payroll.

Activity units are expected to differ markedly among staff categories, since each category gives a different and specific service in the institution. Units are also expected to differ considerably among staff members within the same category because of individual inclinations, differing positions in the staff structure and varying case assignments.

The activity units or operations of the several categories of staff were described as follows: [6]

A. Cottage parents

Counseling-supervisory functions of the cottage parent in relation to children as a cottage group:

Activities such as supervision of children at mealtimes, inspection of children to determine medical status, or merely being with the children. Also included: conferences, meetings, and other activities in behalf of cottage population as a group.

Individualization:

All activities whose primary object is to attend to the child as an individual or as a member of a group of less than four children; conferences with individual children, shopping trips for individuals or small groups, settling arguments, help with homework, discipline when it is not imposed on the cottage as a whole. Also included: conferences with adults, interviews, other activities in behalf of individual children.

Household maintenance:

All activities dealing with the maintenance of the cottage as a physical plant. Requisitions for foodstuffs, repairs, laundry, cleaning supplies, etc., as well as preparation of meals, decoration of the cottage (unless done by the children, when the classification becomes counseling or individualization).

Miscellaneous:

Activities not included in the categories above.

B. Caseworkers and casework supervisors

Telephone call:

Any telephone conversation related to the job, regardless of whether the worker makes or receives it.

Home visit:

Any visit to a home. Does not include visits to institutions.

Office interview or conference: [7]

Any interview or conference conducted in the agency offices, either in the institution or in the central office.

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[6] Activity units were defined for cottage parents, social workers, psychiatrists and psychologists. They were not defined for resident supervisors, remedial teachers, activity and clerical staff, due to the type of records that these staff categories were to keep in the study. See appendix VI.

[7] Time spent in waiting for appointments is included in the time recorded for the subsequent activity, unless the time is spent on another activity. For ex-

Visits to other places:

Interviews conducted other than by telephone or in the home or in the agency's offices. Examples are visits to hospitals, clinics, schools, institutions, or other sources of information or cooperation.

Planning and preparation of case recording:

Includes preparation, dictation and proofing of case records.

Planning and preparation of correspondence and reports:

Includes preparation and dictation or actual writing of letters and reports.

Planning and preparation for supervisory, administrative or psychiatric conferences:

Includes time spent in preparation for a conference with supervisor, psychiatrist, psychologists, cottage parent, or administrative personnel.

Other planning and preparation:

Any other planning, preparation or "desk work" which is part of a worker's function but which cannot be classified above. NOTE: Provision is not made for reading case records as a separately recorded activity. Reading case records is recorded under the activity for which the reading is being done. For example, reading records preparatory to recording or to supervision is included in recording and supervision, respectively.

Miscellaneous:

Activities not elsewhere classified.

Supervisory codes:

Supervisory staff used the above classification to record direct work with cases. This included time spent on cases for which they were directly responsible and in situations where they were acting for the responsible worker. In addition, supervisory staff used the following activity categories:

Supervisory conference:

An interview or conference dealing with a case of a worker for whom the supervisor is responsible. (The worker reports the same conference under "office interview or conference.") This category includes psychiatric or administrative conferences dealing with specific cases.

Other supervisory activities:

Included here are all other supervisory activities: for example, preparation for a supervisory conference, reviewing the work done on a case for administrative decisions, conferences on agency policy, etc.

C. Psychiatrists

Treatment:

All forms of activity with the patient which are intended to have therapeutic effects. Such activities as office interviews, play therapy, or any other work with or for the patient for therapeutic purposes is included under treatment and so recorded. This category also includes diagnostic contacts.

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ample, if while waiting for a client who is late the worker does some recording, then the activity is "recording," not "waiting for office interview."

Conference:

All conferences and interviews with staff or other persons except those intended to have direct therapeutic effect. Staff meetings and case conferences are included in this category.

Recording:

Preparation, dictation and proofing of records.

Miscellaneous:

Not otherwise classified office activity, such as statistical reporting, correspondence and telephoning.

D. Psychologist

Testing:

Preparation, administration, evaluation and recording of tests.

Conference:

Any conference or interview other than testing attended by the psychologist as part of his functions.

Remedial:

Remedial education work in behalf of individual child.

Telephoning:

Any telephone call in regard to the psychologist's work in a case, regardless of whether he makes or receives it.

Miscellaneous:

Not otherwise classified office work such as statistical reporting, correspondence, and other activity not included in above categories.

Summary

Units within the institution are seen on three levels: parts, subassembled units, and finished products.

While production costs can be computed for units on any one of these three levels, their usefulness differs. *Activity units*, or separate parts, are not necessarily indicative of a final product or even of the specialized work it requires. For example, telephone calls and conferences are parts, but these also take place in fields other than institutional care and social work. They are not unique to the institution's job of preparing children for community living. *Service units*, or completed products (from screening to aftercare), while clearly indicative of institutional aims, may be few in number or take a long time to complete.

On the other hand, *work units* (what we have described as subassembled units) require relatively short periods to put together. They are a clearly identifiable product of the institution and can be organized so as to arrive at a theoretical model of the service unit or complete case. Because of these attributes, the work units were chosen as the primary unit of measure in the study of institutional cost.

2. Determining the Cost of a Unit

When the units of institutional care have been identified and their boundaries defined, their cost can be determined. The cost components of units may be examined in two main parts: (1) the services of child care and treatment staff which, *because they involve the child directly, are chargeable to specific work units and service units*;[8] and (2), services of other staff (for example, maintenance, kitchen, and business personnel) and the provision of goods, *neither of which can be charged directly to work units or to service units.*

Since both work units and service units are produced over periods of time, there is a prevalent assumption that the cost of completion of a particular unit can be computed on a mean per diem basis.[9] Inherent in per diem computation is the further assumption that cost of care is, on the average, not affected by the position of the child in the casework process, that is, by his work unit position, by his characteristics and those of staff members serving him. Due mainly to its simplicity and to the recognition that many institutional costs can be charged most meaningfully on a per diem basis, the mean per diem cost procedure has found wide usage.

Although there is no record of per diem costs being applied to unit duration for the purpose of computing unit cost, this would have been a logical next step. However, such a measure, though more informative about cost of care, would still have failed to provide for cost variations relating to (and possibly resulting from) the position of the work unit in the service unit, the characteristics of children receiving service and of the staff providing it. In order to reflect such variations in a cost accounting system, it is necessary to charge directly to individual units the highest possible proportion of costs, leaving the smallest proportion to be charged on a nondirect basis.

Time study of staff operations

The primary source of possible direct charges within the institution is the child care and treatment staff. With the exception of clothing costs and transportation and allowance expenditures,[10] these are the only institutional costs ascribable to a specific work unit. In order to be charged to work units, the time investment of personnel in behalf of specific units must be obtained. Then budgetary data on personnel cost may be applied to the time charges. This procedure required a time study of all child care and treatment staff providing services to a case in any one of the eight work units previously described. The time study involved securing intake department time investments in the screening and intake work units (0 and 1)[11] and institutional time investment in the remaining seven units (2–8).

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[8] Cost of activity units would be computed, if at all, only for explanatory purposes. They do not directly convey cost of service.

[9] This involves the computation of total cost and its division by the number of child-days of care given.

[10] Transportation costs and allowances were originally to have been charged to individual work units. However, the expenditures involved (approximately $2,500) did not seem to warrant the time investment required to obtain direct charges. Clothing costs are charged directly.

Staff recording

The primary focus in the time study was centered on clinical and cottage staff.[12] As the staff categories most directly responsive to the individual child's needs, these groups provide high ratios of direct to indirect charges.[13]

Originally it was intended that all clinical personnel and cottage parents record all activities daily, noting the time consumed by each activity, the child in whose behalf the activity was performed, and with whom it was performed. This pattern of recording was maintained in the study by all the social workers in the institution, by the psychiatrists and by the psychologist. The following variants were introduced for the other personnel.

1. Social workers in the intake department were dealing with many cases that were by definition (because of age or intelligence, for example) ineligible for admission to the institution, but eligible for admission to other divisions of the agency. Activity in behalf of such cases was excluded from recording. Such partial recording, while easier for the staff, made adequate editing impossible and has resulted in an unknown amount of under-recording.
2. Cottage parents found daily and instantaneous recording of activities a very severe burden. While some were able to maintain it, many had to resort to recollection at the end of certain activity periods or at the end of the day. Recording was modified to include only a one-fourth sample of work days and to allow recollective recording at specific intervals during the day when all or most children were away from the cottage.
3. Remedial teachers' activity range was found to be quite limited, and the time devoted to individual children was nearly identical when recorded individually or when charged in terms of the number of classes attended by the given child. Remedial teachers were asked to take attendance and their total time was charged on a per-attendance basis to the children receiving service.

Other staff categories included in the time study recorded as follows:

1. Resident supervisors' time given to individual children was recorded on a name sheet listing all the children in the institution.
2. Medical-dental time was recorded for each child on a daily basis by the nurse and dental hygienist, respectively. The record distinguished physicians' and dentists' time from that of the nurses and hygienists.
3. Activity staff time was charged to total activities (ceramic classes, dancing lessons, scout meetings, etc.). The staff time involved in each activity session was recorded, along with the children in attendance. Staff time was charged on a mean basis to the children in attendance, except that members of the activity staff were asked to report investments with individual children which appeared unusually high. Time thus reported was added to charges against the individual child and subtracted from charges to the group as a whole.

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[11] The agency operates a central intake which services several foster care departments.

[12] Clinical personnel is defined to include social workers, psychiatrists, psychologists and remedial teachers.

[13] While this point also applies to medical-dental services, these services were thought to be little affected by the casework position of the child or by his characteristics.

4. Clerical staff recorded all time in activities chargeable to individual children. Typing of records, correspondence, reports, and conference summaries was included.

Recording of activities continued from January 1 until October 31, 1955, or a total of 304 days, after a pretest period of one week early in December of 1954.

Table 63.—Staff recording: expected daily records and omissions

Category of staff	Number of records expected	Number of records obtained	Percent of attainment
Cottage parents	1,435	1,400	97.5
Social workers (inst.)	1,869	1,869	100.0
Psychiatrists	455	455	100.0
Resident supervisors	785	784	99.9
Clinic (medical)	304	302	99.3
Clinic (dental)	198	196	99.0
Remedial teachers	343	339	98.8
Activities [1]	....	....	[2] 100.0
Clerical [3]			
Psychologist	189	189	100.0
Social workers (intake)	1,354	1,353	99.9

[1] Recording on basis of activities. Supervisory staff checked that every activity was represented by a record.

[2] Assumed.

[3] Staff activity chargeable to individual work units was recorded. Extent of omission unknown.

Clerical processing

Time data were gathered daily by the research office, where they were edited, coded, and posted. As table 63 indicates, a very small proportion of staff workdays is not represented by recording. Close control on the flow of materials was a major function of the research office during the time study. At the same time, the material was edited currently, permitting the elimination of errors, omissions, and contradictions while these were still fresh in the minds of staff. The editing process also included the locating of every time charge (activity) in the proper work unit or subunit. That is, the time had to be charged not only to the specific child to whom the record referred, but also to the casework phase in which the child had been when the activity took place.

Machine processing

The edited time sheets were converted into numeric code which permitted the posting of every time charge on an IBM card. Time charges of social workers, psychiatrists, cottage parents, and the psychologist were posted daily and individually for each worker, as they were being recorded. Medical, activity, remedial teaching.

clerical, and resident supervisors' charges were posted monthly for each category, in a summary of all charges ascribed to a given work unit or subunit by all staff members in that category. The only exception was the medical category, in which the physicians' and dentists' time was charged separately from that of the nurses and hygienists.

Thus processed, each month's recorded activity produced 7,000–8,000 individual IBM cards, with a total for the 10-month study period of some 76,000 entries. So large a deck would have been exceedingly difficult to process, were it not for several data processing operations performed by the IBM service bureau, which produced three summary decks of cards from the basic (activity) deck.

The first, or minor, summary contains total per worker time investment in a unit or subunit. The second deck, or intermediate summary, contains total time per staff category in each unit or subunit. The third, major summary, contains total dollar-and-cent cost of a work unit. To each minor summary card may now be added information about the staff member offering the service, including his per minute cost. To each intermediate and major summary card may be added information regarding the child receiving the service.

Analysis is thus possible on four levels of detail:

1. From the basic data (activity) cards, activity patterns of staff members as individuals or as categories may be taken.
2. From the minor summary cards containing individual staff members' characteristics and time investment per work unit or subunit (but not activity unit), relationships of staff characteristics to service and to cost of work units may be derived.
3. From the intermediate cards containing time investment in each work unit and subunit by category of personnel and also the characteristics of children, relationships of time investment to characteristics of children may be obtained.
4. From the major summary cards containing work unit costs for all care and treatment staff and the characteristics of the child receiving service, relationships of total care and treatment costs to characteristics of children may be determined.[14]

Costs other than staff time

While direct time charges received the primary attention of the study, two other charges were included. The first, a relatively minor cost item—children's clothing—lent itself well to direct charging. The other, a very consequential item of cost, included all supplies and services that cannot be directly allocated to individual recipients. This item of cost, including housing, meals, administration and the unallocated time of direct service personnel, was charged *on a per diem basis within the work unit.* The duration of a work unit enters into the cost of the unit in the form of per diem charges. When these are added to the cost of directly charged time investment of child care and treatment staff and to the costs of clothing, the total cost of the unit is revealed.

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[14] Codes and instruments are shown in appendix VI.

Summary

Once units of work are designated, charges may be made to them either directly as from a time study (or clothing costs) or on a per diem basis. The time study involved all of the care and treatment staff. Staff records were edited, coded and entered on IBM cards as individual charges to work units. IBM procedures were used to summarize the charges in each work unit on several different levels: by staff member, staff category, all care and treatment personnel. They were also used in relating time and cost to characteristics of children and staff.

3. Tests of Predictive Ability of the Data

The value of procedures for determining unit cost of care as outlined above clearly hinges on the accuracy and predictive ability of the time study material, which produces the only large block of directly charged costs. One question that may be asked here is: How large a proportion of time do the direct charges represent in relation to the total work time of the respective categories of staff? Another question is: How stable are the time charges by work unit? Or, having

Table 64.—Ratio of directly charged time to total time worked by category of staff

Category of staff	Estimated [a] time worked (in minutes)	Time directly charged (in minutes)	Percent of time charged directly
Cottage parents	1, 866, 368	1, 866, 368	[b] 100.00
Social workers	549, 037	356, 999	65.02
Psychiatrists	105, 570	66, 615	63.10
Resident supervisors	258, 278	36, 363	14.08
Nurse-hygienist	208, 050	74, 794	35.95
MD—DDS	21, 840	13, 278	60.80
Medical-dental (total of above two groups)	229, 890	88, 072	38.31
Remedial teachers	91, 973	91, 973	[c] 100.00
Activities	159, 391	159, 391	[c] 100.00
Clerical	215, 325	44, 230	20.54
Psychologist	53, 100	29, 879	56.27

[a] Estimate is based on number of days worked times prescribed number of hours at work each day.

[b] This datum may be somewhat misleading in its implications. The time of cottage parents which was not charged directly to *individual* children was distributed over the cottage population with whom the particular staff person was working, hence the full time is accounted for.

[c] Total staff time in these categories was assumed to be given to the groups served.

Table based on period January 1–June 30, 1955.

the distribution of time charges by personnel categories for a given work unit and subunit: How accurately may the personnel demands of such units be predicted?

Direct and indirect charges

With regard to the first question, it is obvious that none of the personnel categories in the institution spend their total working time in directly chargeable activities. Some time is spent in behalf of the whole institution. Some activities (especially those of brief duration)[15] remained unrecorded. Some work time is consumed by activities unrelated to the functions of the institution (social conversation, attending to personal needs, etc.).

Ultimately, all of the staff cost must enter unit cost of care, either through direct time charges or the per diem costs composed of undistributed staff time. Direct time charges may, however, be computed in several ways:

1. Caseworkers, psychiatrists, psychologist and medical-dental staff serve many children individually and directly. Their recorded charges to individual work units constitute a heavy proportion of total time and their supervisory functions are minor or pertaining to the cases already receiving their direct services. Time not charged directly by these four categories of staff was therefore assumed to be distributed among work units in the same proportions as direct charges.
2. Cottage parents, resident supervisors, casework supervisors and clerical staff are able to charge only a small proportion of their total work time directly to work units. In the case of cottage parents the remaining time was distributed equally among the children in the cottage on the day of recording. Since resident supervisors, casework supervisors and clerical staff serve the institution as a whole and thus every child in it to a presumably equal extent, their unallocated time was added to the other operating costs of the institution, to be distributed on a per diem basis.
3. Remedial education and activity staff time is invested almost entirely in the conduct of group activity. All time of these staff categories was charged to the children in the groups they served, with the time for each group equally divided among the children it contained. (See exception, p. 298.)

Empirical tests of predictive ability

To determine predictive ability of the data as to personnel requirements of the several work units an empirical test was conducted. The test required gathering statistics on time investment by work unit or subunit and projecting these to a later period in the study. The actual projections undertaken were from January, February, and March to the 7-month period April–October.[16]

Predictive ability of the data was also measured after the introduction of characteristics of children. The application of statistical principles and methods to the prediction of cost of services is described in a note following this section. The essence of the procedures was as follows:

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[15] The recording procedure required that staff round time to the nearest 5 minutes. Activities of 2 minutes or less were not recorded.

[16] See pp. 208, 209 for the projections indicated.

Procedures I and II involved the use of one and three characteristics, respectively. For each class of the characteristic(s) the mean cost of service for one unit was computed. These average costs for the "base" period (January–March) were then assumed to be the best possible predictive values of costs in the test period (April–October, except for the summer months of July and August). The question was then asked: To what extent has there been a lessening of error as a result of introducing the means of classes instead of using the overall mean cost without regard to class?

The answer is given in terms of size of the variance of the errors resulting from each predictive procedure. We have, then, first a variance of errors of prediction based on the predictions from the *overall* mean. This variance has been called σ_1^2. Secondly, a variance, σ_2^2 has been computed for the deviations of scores around the *class* means used as predictors. Thirdly, the two variances, σ_1^2 and σ_2^2 were compared and the difference was computed as a ratio of σ_1^2. This ratio $\frac{\sigma_1^2-\sigma_2^2}{\sigma_1^2}$ is ρ^2, which is equivalent to the percentage of improvement of prediction attained by introducing the given characteristic(s).[17]

Procedure III involved the use of weighted values of seven characteristics in predicting the cost of a unit. The weight was obtained for each class of a characteristic by dividing the mean cost per base period unit for the class (c) by the total (t) mean cost of a unit during the base period without regard to class.

$$\left(\text{Weight } W=\frac{\overline{X}_c}{\overline{X}_t}\right)$$

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[17] The working formulas are:

$$\sigma_1^2=\frac{\Sigma X^{*2}}{N^*}-[2\overline{X}'\overline{X}^*-(\overline{X}')^2]$$

$$\sigma_2^2=\frac{\Sigma X^{*2}}{N^*}-\frac{\Sigma\{N_c^*[2\overline{X}_c'\overline{X}_c^*-(\overline{X}_c')^2]\}}{N^*}$$

σ_3^2—computation identical with that of σ_2^2
when
X^*—score (i. e., cost) of unit in test period
$\overline{X}^*$—mean of all scores in test period
$\overline{X}_c^*$—mean of all scores in a class in test period
N^*—number of cases in test period
$\overline{X}'$—mean of all scores in base period
$\overline{X}_c'$—mean of all scores in a class in base period
σ_1^2—variance of errors of prediction based on the population mean
σ_2^2—variance of errors of prediction based on the means of classes of one characteristic
σ_3^2—variance of errors of prediction based on the means of classes of three combined characteristics

Each unit was then given a score which was the sum of the weights of all the classes that it fell into (that is, the characteristics applicable to that unit). The resulting weights were in turn correlated with the actual base period scores for a random sample of 100 units and a regression equation was produced. This linear regression equation was then used to predict the scores (costs) of test period units from the weighted scores based on their characteristics.[18]

Summary

Two questions may be posed with regard to the predictive ability of the procedures employed. First, what proportion of staff time is represented in direct charges? The answer is that more than 50 percent of care and treatment staff time is so represented. Second, what device may be used for measuring predictive ability? The device employed in this study was an empirical test of predictive accuracy based on one period and verified in another.

4. Characteristics of Children and Staff as Cost Factors

It was the considered opinion of practitioners in institutional care that work units would have a wide range of time investment. There were three reasons for this opinion. The first (held constant in this study) is the position of the child in the casework process, that is, the work unit itself. The second is a constellation of items which may be called characteristics of the service recipients, that is, what the children and their families are like. The third is the characteristics of those supplying the service, that is, what the staff are like.

Should it be possible to define characteristics of children and staff that are related to time required in a work unit, it would then be possible to use these characteristics to reduce errors in predicting cost of care. Under these circumstances, it would become useful to speak not only of children in general in a work unit, but of children with

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[18]

$$b = r_{xy}\frac{\sigma_x}{\sigma_y}$$

$$a = \overline{Y} - b\overline{X}$$

r = correlation of weight and cost in base period
σ_y = standard deviation of cost
σ_x = standard deviation of weights
$\overline{Y}$ = mean cost $\overline{X}$ = mean weight
Y' = predicted cost $= a + bx$
x = weighted score based on characteristics of child
σ_4^2 = variance of errors of prediction based on weighted scores

$$= \frac{\Sigma(Y' - \overline{X}^*)^2}{N^*}$$

specific characteristics in a work unit (young, male, high or low I. Q., etc.).

Similarly, an estimate of casework time required for the completion of a unit could be refined by considering the casework time of a worker with a high or low rating in performance, much or little experience, male or female. If performance time is related to characteristics of children and staff, then such a narrowing in terms of the characteristics of children (units) and of the staff executing these units can be expected to group the work unit population in a way that will reduce the variances within the unit and thus increase predictive accuracy.

Characteristics of children

In order to analyze children's characteristics in relation to time invested by the various categories of staff, a descriptive system introduced by Henry S. Maas was used in modified form.[19] Maas describes characteristics in eight primary divisions: the organism, the self, personality, reference group, social role, problem, crisis, and adjustment. Of these, the first six were given the most emphasis in the present study. The seventh—crisis—was considered only peripherally. The last—adjustment—was not used, due to difficulty in finding ways to measure such a variable.

The modified Maas system used in this study was as follows:

> Under organism were listed age, sex, intelligence.
> Under self were security and adequacy.
> Under social role were leadership, familial structure.
> Under personality were "moving toward," "moving away" and "moving against."
> Under reference group (called "groups motivating individual behavior" in chapters D and E of this report) were religion, national origin and social class.
> Under problem were problems of child and family, problems of the child, problems of the family, psychiatric diagnosis.
> Under crisis was source of referral.

The items pertaining to organism were obtained from the child's record by the research staff. Items in the categories "self," "personality" and "social role" were suggested largely by the Maas material. Whether or not a child possessed characteristics in these categories was determined by whether he did or didn't show certain behavior forms, as observed by the two or three cottage parents, one teacher, one administrative staff member and one caseworker most familiar with him. Reference group and problem items were answered exclusively by the social worker for the children in his caseload.[20]

Characteristics of children were then gang punched into the intermediate summary IBM deck; that is, the deck containing time invested by category of staff for each completed work unit and subunit.

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[19] See Henry S. Maas *et al.*; *A Conceptual Framework for Research in the Children's Field*, Berkeley, Calif.: June 1954 (dittoed).

[20] The psychiatric diagnosis was taken from a psychiatric study of cases concurrent with this research.

Characteristics were also punched into the major summary deck—which contained the total dollar cost per work unit.

Characteristics of staff: personnel data

Characteristics of staff considered relevant to time investment per work unit were sex and age, amount of education and professional training in social work, amount of experience in the profession and some measure of performance. All these characteristics except the last were obtained from the personnel files of the agency for the two large categories of staff—social workers and cottage parents. The last characteristic, level of performance, was obtained in the form of a rating by supervisory staff.

Since an attempt was made to relate characteristics of staff to cost of care, the material descriptive of individual staff members was entered on the minor summary cards; that is, those cards which contain the time invested by individual staff members in each work unit or subunit.

Cost as a staff characteristic

It should be noted that up to now cost has been considered only as the result of direct and indirect charges. Cost may, however, also be considered as a characteristic of an individual or a group of staff persons. The cost of all the direct time charges, which are the preponderant source of directly chargeable institutional expenditures, may be computed by multiplying the number of minutes by the per minute cost of the given staff member or staff category. Thus, cost of a staff member's services for a given unit of time may be considered as a characteristic of that person, along with training, experience, age or sex. Unlike the latter characteristics, however, the per minute cost of a specific staff member could not be obtained directly from the records of the institution.

Per minute staff costs had to be derived from the total time a staff member worked over a specific period, and his cost to the institution for that period. The period chosen was the second half of the 1954–55 budgetary year, or January 1–June 30, 1955. Time invested for that period was available from the study records both in terms of time worked and time charged directly to the various work units. Costs of staff were computed so as to include:

a. Salary payments to the staff member.
b. Insurance (social security, medical and hospital insurance) paid on his behalf.
c. Expenses reimbursed to the staff member.
d. Cost of providing him with office space.[21]
e. Cost of living quarters for the staff member and his dependents (where applicable).[21]
f. Cost of prepared meals or storehouse food withdrawals for the staff member and his dependents (where applicable).[21]

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[21] See chapter B for computations of space and food costs.

The total of the above expenditures is considered to be the cost of a staff member's services.[22] To obtain per minute costs, it is possible to divide the total cost by the total number of minutes worked or the total number of minutes charged, the latter only if the assumption is made that time not charged directly is distributed similarly to time charged directly. This assumption was made for all categories of staff, with the following exceptions:

a. Resident supervisors, for whom as a group only 14 percent of the work time is represented in direct charges.
b. Clerical staff, with only 20 percent of work time in direct charges.
c. Casework supervisors, who have a relatively low proportion (33 percent) of their total time in direct charges, even though they are in a staff category with a high ratio of direct to total time (65 percent).

All other staff categories have 55 percent or more of their time accounted for in direct charges, except for medical staff, with 38 percent. Since nearly 100 percent of the subunits in work units 4, 5, and 6 use medical time, and since little of the medical time is spent in supervisory or administrative activity, it seemed advisable to assume here that the uncharged time was spent in preparatory and housekeeping activities related to direct service.

For the three categories of staff exempted from the general procedures for per minute cost computation (resident supervisors, clerical staff and casework supervisors), per minute costs were computed on the basis of the actual time charged as a proportion of time worked. For example, the resident supervisors charged directly 14 percent of their work time. A similar proportion of their cost (14 percent) was then divided by the number of minutes of direct charges to obtain the per minute cost.

A word of caution about these per minute costs. In none of the instances, no matter what the computational procedure, do these reflect the actual salary of staff. Moreover, they do not, except for the resident supervisors, clerical staff and casework supervisors, reflect the per minute cost to the institution. They are the per minute costs of care if certain costs (of child care and treatment) are assumed to be well represented by direct charges made to subunits and work units.

Summary

The anticipated broad dispersion of time invested within work units by each of the staff categories could be related to characteristics of the service givers and service recipients. To test this possible relationship, the characteristics of both children and staff were obtained and entered on the IBM cards, representing summaries of time investments by the individual staff members and by whole staff categories (the latter in dollar, not minute, values). Per minute costs of staff time were considered a characteristic of staff and entered along with the other staff characteristics.

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[22] Cost of personal laundry was not included. This was a small item, about $1 per week per staff member and difficult to isolate.

B. Application of Statistical Principles and Methods to Predicting Costs of Services

by JULIUS A. JAHN

The application of statistical principles and methods to predicting costs of services involves three major steps or phases: I. The statistical definition of criteria or conditions to be satisfied for any procedure to be accepted for making predictions of costs of services. II. The statistical construction or development of particular procedures which can be expected to satisfy these criteria. III. The statistical evaluation of whether any of these procedures does satisfy these criteria, based on the results of their application under "experimental conditions." [23]

I. Definition of Statistical Criteria for Prediction Procedures

A. Definition of basic terms to be used

Y = any given measure of cost for which predictions are to be made.
y = a particular value of Y.
T = a period of time within which values of Y are to be predicted.
t = any one interval of time within T for which a value of Y is to be predicted.
M = the total number of intervals of time in T.
I = the "population" of individuals for whom predictions are to be made.
i = any one individual in I.
N = the total number of individuals in I.
Y_{it} = the "true" value of Y for a particular individual and interval of time.
V = a series of alternative procedures for making predictions, where by a prediction procedure is meant a defined rule for using certain known information to predict values of Y_{it} at some point of time prior to t.
y'_{itv} = a particular value of Y that has been predicted for the i'th individual and the t'th interval of time according to a particular prediction procedure v.

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[23] Cf. Horst, Paul, *et al.: Prediction of Personal Adjustment.* Social Science Research Council Bulletin 48, 1941, for a more complete discussion of statistical principles and methods applied to problems of prediction; especially pp. 253–312.

$e_{1tv} = (y'_{1tv} - y_{1t})$; or the "error" of predicting y_{1t} by procedure v.

$\bar{e}_{tv} = \dfrac{\sum\limits_{i} e_{1tv}}{N}$; or the mean of the errors of prediction for all individuals and for the t′th interval of time.

$\bar{e}_{v} = \dfrac{\sum\limits_{i} \sum\limits_{t} e_{1tv}}{N \cdot M}$; or the mean of the errors of prediction for all individuals and all intervals of time, during period T.

$\sigma^2_{v} = \dfrac{\sum\limits_{i} \sum\limits_{t} e^2_{1tv}}{N \cdot M}$; or the mean of the squared errors of prediction. This is also referred to as the "variance" of the errors, or the square of the "standard error of prediction."

$\sigma_v = \sqrt{\sigma^2_v}$; or the "standard error of prediction."

$\sigma_1{}^2$ = the value of $\sigma_v{}^2$ for a "minimum" procedure 1, involving the assumption that all values of y'_{1t} are equal to a single mean value computed for a preceding period of time.

$\rho^2_v = \dfrac{\sigma^2_1 - \sigma^2_v}{\sigma_1{}^2}$; or an index, sometimes referred to as the "correlation ratio" or "index of correlation," which measures the proportionate reduction in the "variance" of errors when a given procedure for prediction, v, is used, as compared with when the minimum procedure, 0, is used.

B. *Definition of the statistical criteria for prediction procedures:*

1. The value of $\bar{e}_v$, taken without regard to sign, is to be less than zero plus k, where k is a given value which is close to zero, and "negligible" in size.

2. The values of $\bar{e}_{tv}$ are to be "random" over all intervals of time.[24] That is, let

e_v = the median value of $\bar{e}_{tv}$ within any period of time, T:

a_{tv} is to represent the event that $\bar{e}_{tv}$ is greater than e_v;

b_{tv} is to represent the event that $\bar{e}_{tv}$ is less than e_v;

$P_v[a] = \frac{1}{2}$, is the probability of a_{tv} occurring for an indefinitely large number of periods of time, T;

$P_v[b] = \frac{1}{2}$, is the corresponding probability for b_{tv};

a^*_{tv} = any one of a series of events for which it is known that a_{tv} has occurred;

b^*_{tv} = any one of a series of events for which it is known that b_{tv} has occurred;

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[24] Cf. Wilks, S. S.: *Elementary Statistical Analysis*, Princeton University Press, 1951, pp. 222–235, for a more complete discussion of principles and methods of testing "randomness."

a'_{tv} = the occurrence of a_{tv} following either a^*_{tv} or b^*_{tv}, by any specified interval;

b'_{tv} = the occurrence of b_{tv} following either a^*_{tv} or b^*_{tv}, by any specified interval;

$P_v[a^*;a']$ = the probability of a'_{tv} following a^*_{tv} by any specified interval over all possible periods of time, T.

$P_v[a^*;b']$ = the probability of b'_{tv} following a^*_{tv} by any specified interval.

$P_v[b^*;a']$ = the probability of a'_{tv} following b^*_{tv} by any specified interval.

$P_v[b^*;b']$ = the probability of b'_{tv} following b^*_{tv} by any specified interval.

Then, $P_v[a^*;a'] = P_v[a^*;b'] = P_v[b^*;a'] = P_v[b^*;b'] = P_v[a].P_v[b] = 1/4$

3. The value of ρ^2_v is to be greater than zero.

4. The value of ρ^2_v is to be a maximum as compared to all other alternative procedures.

5. The value of σ_v is to be less than L, where L is a given "negligibly small" value.

II. The Statistical Construction of Procedures for Predicting Costs of Services

A. Statistical information to be used

T_a = a period of time preceding the period T for which predictions are to be made.

t_a = an interval of time within T_a.

I_a = all persons for whom information, to be used in making predictions, can be known for the period of time T_a.

i_a = any one person in I_a.

$y_{it,a}$ = a value of Y that is known for the i_a'th person and the t_a'th interval of time.

J = a series of "variables" for which information is known at points of time for which values of Y are to be predicted, and which can be used in procedures for making predictions. By a "variable" is meant a defined way by which persons and intervals of time can be classified into two or more mutually exclusive subclasses. These variables may be qualitatively or quantitatively defined.

X_j = any one of the "predicting" variables.

x_j = any one of the possible subclasses for X_j. These will be referred to as "values" for quantitatively defined variables, and as "categories" for qualitatively defined variables.

z_j = the highest value or numbered subclass of x_j.

$(y, x_1, x_2, \ . \ . \ . \ x_j. \ . \ . \ . \ )_{it,a}$ = the values or subcategories for each of the variables that are known for a particular person and interval of time during the period of time T_a. It is assumed that these are known either for all persons and intervals of time, or for randomly sampled persons and intervals of time.

B. Statistical principles and methods for constructing prediction procedures

1. Selection of mathematical functions.

a. $y'_{itv} = f_v(x_1, x_2, \ldots x_j, \ldots)_{itv}$, where f_v represents a particular mathematical function which is to be used in procedure v. By a mathematical function is meant a rule by which for any given person and interval of time, assuming that the values or subcategories of the predicting variables are known, then a corresponding value for Y is predicted according to this procedure.

b. For example, in the present study, the two following types of functions have been used:

(1) A "correspondence table," which specifies in tabular form the value of Y to be predicted from given values of X_j.

(2) A "linear regression equation," involving one or more independent or predicting variables:

$y'_{itv} = (a + b_1x_1 + b_2x_2 + \ldots b_jx_j \ldots)_{itv}$, where the a's and b's are "parameters" to be statistically determined.

2. Statistical determination of "parameters" for making predictions.

a. *The "principle of least squares."* Assuming that the type of mathematical function has been selected, the various "parameters" (i. e., terms in the function which are to be assigned constant values for all persons and points of time for which predictions are to be made) are to be determined according to the "principle of least squares" applied to the known statistical information. According to this principle, each parameter is to be determined to minimize the value of

$$\sum_{i}^{N}\sum_{t}^{M} \frac{(y'_{it,av} - y_{it,a})^2}{N \cdot M}$$

b. *Computation of parameters involved in the "correspondence table."*

(1) Classify all persons and intervals of time for the period T_a into subclasses according to the known values or subcategories of one or more selected predicting variables, X_j.

(2) Compute the mean values of Y for each of these sublcasses, i. e., $\overline{y}\ (x_1, x_2, \ldots x_j, \ldots)$

(3) Then the predicted value of Y for any person in a given subclass is set equal to the mean value of Y in this sublcass, i. e., $y'\ (x_1, x_2, \ldots x_j, \ldots)_{it} = \overline{y}\ (x_1, x_2, \ldots x_j)_{it}$

c. *Computation of parameters for the "linear regression equations."* The parameters in the linear regression equations can be "exactly" computed by a number of methods. However, when the number of predicting variables is large, these computations become so laborious that "approximation" methods are more convenient. A particularly simple approximation method used in the present study has been developed and described elsewhere in more detail by Guttman.[25] Briefly, in this method, each subcategory of the predicting variables is treated as an independent dichotomous variable.

The associated regression weights are computed to be proportionate to the mean values of $y_{1t,a}$ for all persons and intervals included within a subcategory of one of these predicting variables. This approximation procedure has been shown by Guttman to give results equal to that for exact methods, assuming that the various predicting variables are not correlated with each other. Guttman has also found in an empirical study that the approximation is very close when the number of predicting variables is large.[26]

III. Statistical-Experimental Evaluation of Prediction Procedures

In order to determine whether any prediction procedures which have been constructed satisfy the defined criteria, each procedure is to be applied to make a series of predictions for a period of time following that for which information was used in its construction. These predictions are to be made for all, or for randomly sampled persons and intervals of time, within the period of time selected, and under conditions which have been "experimentally designed" to be like those under which such predictions would be applied "in practice." Any one series of predictions obtained under these conditions, together with a corresponding series of "true values" of the variable being predicted, will be referred to as the "statistical-experimental evaluation" of the procedures for prediction.

There are two different kinds of statistical principles and methods which can be applied to make such evaluations: A. "statistical estimation," and B. "statistical tests of hypotheses." Statistical tests of hypotheses can be used to accept or reject hypotheses which have been defined *prior to or independently of* knowledge of the results of a particular experiment. Statistical estimation can be used to derive hypotheses from the results of the experiment, and does not require "a priori" definition of these hypotheses.

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[25] Cf. Horst, Paul: *op. cit.* pp. 278–279, 282–285.
[26] *Ibid.*, pp. 348–364.

A. *Statistical principles and methods of estimation* [27]

1. Definition of terms:

K_b=any particular parameter to be estimated, e. g., e_v or σ_v^2, for a period of time T_b following T_a.

k_b=the "true" value of K_b that could be determined at the end of the period for all persons and intervals of time.

S=all possible alternative methods of estimation that could be used.

R_s=all the indefinitely large number of estimates of K_b according to method s.

r_s=one of the estimates of K_b according to s.

$k'_{r,s,b}$=the value of K_b that has been estimated.

$e_{r,s,b}=(k'_{r,s,b}-k_b)$; or an "error of estimation."

$P_{s,b}$=the probability that $e_{r,s,b}$ will be equal to a certain value, e, for all possible estimates from a given estimation procedure s, during the experimental period T_b.

2. Definition of statistical measures of errors of estimation:

$M(e_{s,b})=\sum_e P_{s,b}\cdot(e)$ the mean value of the errors of estimation for a given method of estimation and period of time. This measure is sometimes referred to as a measure of the "bias" or "non-random error" of estimation,

$\mathrm{Var}(e_{s,b})=\sum_e P_{s,b}\cdot(e^2)-M^2(e_{s,b})$ the "variance of the errors of estimation" for a given method of estimation and period of time. This is sometimes referred to as a measure of the "random" errors of estimation.

3. Definition of "principles for selection of the best method of estimation."

Of all the possible methods of estimation which could be selected for use under the given experimental conditions, including the "costs" of application, the one method to be selected as "best" is to be that for which the two following hypotheses have *both* been accepted as true:

a. The value of $M(e_{s,b})$ is less than U, where U is some "small negligible" value that can be assumed to be approximately zero. Such estimates are referred to as "unbiased" estimates.

b. The value of Var $(e_{s,b})$ is less than or equal to that for any other of the alternative methods of estimation.

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[27] Cf. Hansen, M. H., Hurwitz, W. H., and Madow, W. G.: *Sample Survey Methods and Theory*, John Wiley & Sons; New York, 1953, for a comprehensive discussion of principles and methods of estimation from random samples.

4. Application of principles

These principles were applied in the following ways in selecting the best procedures for estimation, involving both selection of information to be used and the formulas used in analyzing the information.

a. *Selection of statistical information:*

(1) Records of costs obtained under standardized and supervised conditions.

(2) Complete enumeration of costs for all persons and intervals of time within the experimental period. Random selection of samples of persons and intervals of time used for some estimates to limit costs of analysis.

(3) Summertime intervals excluded because of changes from usual conditions for operation of the institution.

(4) Estimates of errors of prediction based on period of time following the period for which information was obtained to estimate parameters in the functions used to make predictions.

b. *Selection of methods of statistical analysis for estimation:*

(1) Formulas used for computations of the measures of error of prediction were algebraically identical with those given in the definition. For large random samples, these formulas have been shown to have only a negligible bias.[28]

(2) In order to correct for a certain amount of "under-recording" that was found to occur to an increasing degree during the "experimental period," as compared with the "construction" period, some of the estimates of the errors of prediction were computed under the condition that each of the predictions was decreased by a constant amount equal to the difference between the mean values of Y for the two periods of time. The "corrected" estimate provides a "lower" limit for the amount of the variance of the errors of prediction, assuming that the under-recording had not occurred.

B. *Statistical tests of hypotheses*

1. Definition of basic terms:

H=all the possible alternative hypotheses, each of which provides an *a priori* value or range of values for one of the statistical criteria.

h=any one of these alternative hypotheses.

h_0=one of these alternative hypotheses, which is preselected as the "null-hypothesis," i. e., the particular hypothesis which is tentatively assumed to be true in order to statistically test and possibly reject it.

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[28] Cf. Yule, G. U. and Kendall, M. G.: *An Introduction to the Theory of Statistics* (12th Edition), J. B. Lippincott Company: Edinburg, 1940, pp. 435–436.

$k^*_{b,h}$ = a value or range of values that has been set for k_b, according to hypothesis h.

$e^*_{b,h} = (k^*_{b,h} - k_b)$, or the amount of error involved in assuming that $k^*_{b,h}$ is equal to the true value of a parameter.

$d_{b,hs} = (k'_{r,s,b} - k^*_{b,h})$, or the difference between the value of the parameter determined by hypothesis and one of the values estimated from a randomly selected sample.

2. Principles of "goodness of fit" of a hypothesis[29]

a. Given: U = a limiting value to e, sufficiently close to zero to be "negligible."

b. Then, reject any hypothesis from the results of any experiment for which $e_{b,h}$ does not fall within the interval zero plus or minus U.

3. The "Neyman-Pearson" principles for testing hypotheses[30]

a. L = a limiting value for $d_{b,hs}$ to be predetermined so that the probability of $d_{b,hs}$ exceeding this limit (in either or both directions from zero) for an indefinitely large number of random samples, will be equal to or less than a given small value (e. g., $A = .05$), assuming that the null hypothesis is true.

b. The null hypothesis (h_0) is to be rejected from the results of any experiment based on random sampling, if the value of $d_{b,hs}$ is greater than L.

c. P_{I} (the probability of rejecting h_0 if true) will then be equal to or less than A.

d. P_{II} (the probability of not rejecting h_0 if any one of the alternative hypotheses is true) is to be minimized by appropriate choice of statistical and experimental methods under given conditions, such as cost.

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[29] The term "goodness of fit" is taken from Yule, G. U., and Kendall, M. C.; *op. cit.*, p. 430.

[30] Cf. Neyman, J.: *First Course in Probability and Statistics*, John Holt and Company; New York, 1950, and Wilks, *op. cit.* for a more complete discussion of these principles and methods.

II

APPENDIX TO CHAPTER B

Cost Categories of the Institutional Line Budget

Summary

I. Salaries and wages
II. Maintenance
III. Administration expenses
IV. Institutional operations
V. Fixed charges

Total Expenditures

I. *Salaries and wages*

A–3 Wages for repairs

B–6 Engine room wages

C–1 Administration Salaries

a Executives and assistants
b Clerical staff

D–5 Household Help

a Diet, kitchen and storehouse
c Repair department
d Other household help

D–9 Professional Salaries

a Nurses
b Physicians, dentists, etc.
c Supervisors and assistants
d Caseworkers
e Psychiatric service
f Cottage parents

D–10 Educational Salaries

a Teachers and activity workers
c Summer program
Reserve

II. *Maintenance*

A-1 Repairs to building and equipment
A-2 Repairs to furniture
A-4 Materials for repairs
A-5 Replacement of building equipment
A-6 Replacement of furniture
B-4 Gas and electricity
B-5 Fuel

III. *Administration expenses*

C-2a Printing
  b Postage
  c Stationery and office supplies
  d Office equipment
C-3 Telephone and telegraph
C-8a Magazines and newspapers

IV. *Institutional operations*

D-1 Food
D-3a Diet and kitchen supplies
  c Other supplies
D-4 Linens and bedding
D-6 Wearing apparel
D-7 Medical supplies and carfares
D-11 Educational and recreational supplies
D-13a Outings and recreation
D-16a Transportation
  b Motor vehicles supplies
  c Pocket money, allowance
  d Laundry service
  e Workers' expenses
  Barber
  Sundries

V. *Fixed charges*

Taxes
Insurance

Details of Budgetary Classifications

A-1 Repairs to Building and Equipment (contract work)

Boiler repairs
Carpentry
Chimney repairs
Electrical repairs and installation
Exterminating contracts
Floor and linoleum repairs
Garbage removal contracts
Motor repairs
Painting and papering
Plumbing repairs
Repairs to kitchen equipment—contracts and service
Repairs to surface drainage
Road repairs
Roof repairs
Swimming pool repairs
Water coolers—rental and service

A-2 Repairs to Furniture (contract work)

Bed spring repairs
Drapes and furniture covers cleaned
Furniture repairs
Mattress repairs
Piano repairs
Re-upholstering
Rugs cleaned and repaired
Television and radio repairs

A-4 Materials for Repair (work done by staff)

Cement, plaster, cinders
Electrical supplies
Engine room supplies (acetylene, asbestos, buronium, engine oil, kerosene, oxygen, packing)
Glass
Hardware
Lumber
Paints and brushes
Plumbing supplies

A–5 Replacement of Building Equipment

Bathroom fixtures and equipment
Boiler and motor parts
Bulbs, globes and starters
Care of grounds—plants and equipment (including shovels)
Clock and flashlight batteries
Dishwashing machines
Electric fans
Extinguisher fluids and extinguishers
Flags
Flowers
Garbage cans
Heaters
Hot water and storage tanks
Ironers and dryers
Keys, locks and doorchecks
Lawn mower parts and repairs
Ranges, stoves and parts
Refrigerators and freezers
Screening
Valves
Stair treads and linoleum
Washing machines
Watchman dials
Window shades, venetian blinds and awnings
Sinks

A–6 Replacement of Furniture

Cottage furniture
Curtain material and rods
Furniture covers and drapes
Lamps and shades
Lockers, handles and parts
Mattresses and bedspreads
Mirrors
Office furniture and files
Rugs and cocoanut mats
Schoolroom furniture
Sewing machine parts

C–2 Administration Expenses

a. Printing, mimeo supplies, and mimeographing done outside
b. Postage
c. Office supplies
d. Office equipment (machines, ediphone cylinders and supplies, repairs to equipment and maintenance contracts)

C–3 Telephone and Telegraph

C–7 Conference Expenses (out-of-town fares, registrations)

C–8a. Advertising (central adm. for personnel)
Magazines and newspapers (including books, pamphlets, subscriptions)
Microfilming (including reader's salary), intake Dept. only
Publicity (community relations dept.)

C–8b General Administrative Expenses

Alumni project
Anniversary gifts and gratuities
Board and staff meetings and expenses
Funeral expenses and grave markers
Legal expenses (other than retainers)
A/c losses: payments to staff
Obituaries and memorial book
Special services rendered
Studies
Wigs

D–1 Food Items—including meals off grounds

D–3a Diet and Kitchen Supplies

China
Cutlery
Glassware
Kitchen utensils
Paper cups and plates
Pots and pans

D–3c Household Supplies

Brooms, brushes, mops, pails, dustpans
Cleaning soaps and powders
Face soaps
Laundry soaps and bleaches, etc.
Oils, wax, disinfectants
Paper bags
Paper towels
Toilet paper
Twine and wrapping paper
Wax paper

D–4 Linen and Bedding

Bath mats
Bath towels
Bedpads
Blankets
Dish towels
Face towels
Paper napkins
Paper towels
Pillows and cleaning of pillows
Pillowcases
Rubber sheeting
Sheets
Shower curtains
Table and shelf oilcloth
Table cloth material
Uniforms and caps for kitchen staff

D–5d Household Help

D–6 Clothing

All articles of apparel
Dry cleaning of clothes
Graduation dresses
Gym clothes
Hair brushes and combs
Nail brushes and files
Shoe polish
Shoe repairs
Suitcases

D–7 Medical Supplies

Bandages and surgical supplies
Carfares to doctor, hospital
Dental supplies
Drugs
Eyeglasses and repairs
Orthodontia supplies
Orthopedic appliances and shoe adjustments (per prescriptions)
Toothbrushes
Toothpowder
Vitamins

D–9b Panel Medical and Dental

Bills for services rendered by physicians, dentists, ophthalmologists, orthodontists
Clinical visits
Laboratory tests
Hospitalization
X-rays

D–9e Panel Psychiatric and Psychological

Bills for services rendered by psychiatrists, psychologists, remedial teachers
Encephalograms
Neurological examinations
Tutoring

D–11 Educational and Recreational Supplies and Equipment

Athletic and recreational supplies
Class and school supplies
Film rental and payment to operator
Gifts
Music supplies
Psychological supplies and books
Summer program supplies
Summer school tuition
Toys, arts and crafts material

D–16 Other Expenses

a. Transportation (children's and parents')
b. Motor vehicle supplies and repairs, gasoline and oil
c. Pocket money allowances
d. Laundry (no supplies)
e. Workers' expenses

Barber
Freight and cartage
Funeral wreaths, etc. (staff)

III

APPENDIX TO CHAPTER C

A. Analysis of Social Work Activity Units

The general management of cases flowing into, through and out of the institution is the responsibility of the social service department. It is therefore pertinent to review the specific operations through which social workers carry out this responsibility. Such a review may shed light not only on the social work processes involved in the completion of work units, but possibly also on the operating emphasis within each work unit.

Work unit 1—intake

Intake is primarily a period of preparatory exploration and planning. Accordingly, much social work time is spent with the child (14 percent),[1] with his parents (24 percent) and with other social service staff (18 percent). The social worker in intake seems to act mainly as a planner and a conveyor of plans. The work involves extensive telephoning (12 percent), recording (18 percent), correspondence (8 percent), and various other preparation (5 percent), in addition to the primary task of interviewing (39 percent). The supervisory conference activity around the intake period is considerable and is exceeded only in discharge, another unit which involves extensive planning and decision making.

Work unit 2—pre-admission

Pre-admission, also a planning unit, is however considerably more focused. A decision has already been made on placement of the child and the pre-admission unit is concerned with implementing that decision. During this unit the child is allocated to a cottage (2 percent of social work time is so expended); administrative considerations are dealt with (8 percent of worker's time); the child, parents, relatives and social service staff are seen (35 percent of worker's time); and a very large proportion of time is spent in planning, recording, case reading and other preparatory activity (54 percent).

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[1] Percentages in parentheses are based on the total social work time in the work unit under discussion.

Work unit 3—admission

Admission—obtaining physical custody of the child and taking him to the institution—emphasizes casework service. Ninety-three percent of the time spent by the social worker in admission is in activity with the child. The remaining time is spent largely in dealing with administrative matters (4 percent), and with cottage parents. Most of the time in this work unit is, however, not spent in travel with the client (activity category designated as "visits to other places") (38 percent), but in office interviews (57 percent), held both in the central offices and the social service office at the institution.

Work unit 4—institutional adjustment

The initial period of the child's stay in the institution—here called "institutional adjustment"—consists of extensive contacts with the child (22 percent of worker's time), his parents and relatives (13 percent), and with personnel in social service, i. e. other workers, supervisors, psychiatrists or psychologists (12 percent), with more than half of the latter time spent directly in supervisory conferences. Case recording activity is somewhat heavier in this work unit than in the other units of placement (13 percent), probably because of some postponed recording from the previous work units 2 and 3. The rate of correspondence and reports declines from units 1 and 2 and does not rise again until the next planning unit, i. e. discharge. The child is now under care and the primary effort is directed toward his care and treatment in conferences with him, his parents, and other staff, and in recording the content and effect of these conferences.

Work unit 5—life adjustment ("treatment")

Following the child's adjustment to institutional life, a long undercare period begins. Its primary objective is the adjustment of the child to life *outside* the institution. Social work activity during this period differs only a little from that of work unit 4. The rate of office interviews goes up (from 42 percent in work unit 4 to 48 percent in work unit 5), and there is increased activity directly with the child (25 percent of worker's time) and with the child's parents and relatives (17 percent of worker's time). The proportion of preparatory and supervisory activity remains much the same as during work unit 4.

Since work unit 5 consumes by itself as much social work time as all the other work units put together or more, it may be considered the base unit of social work operations—a plateau of proportional distribution of social work time.

How is this time used? By far the largest part (48 percent) is spent in office interviewing or conferences, with an additional 7 percent spent in supervisory conferences and 10 percent in other supervisory activity, such as planning supervision or the temporary assumption of a worker's functions by the supervisor.

The second major activity is preparing and producing records, reports and correspondence (17 percent). The third major function is telephoning (7 percent). Thus, the worker's time is devoted to treating, and to reviewing and communicating treatment results, with nearly a quarter (24 percent) devoted to communication.

With whom does the worker spend his time? He spends more than one-third (37 percent) alone. Much of his communication is written, and much of his preparation solitary. One-fourth of the worker's time (27 percent) is spent with the child, 15 percent with parents, and another 1 percent with relatives, giving a total of 43 percent of this time spent with the clients, i. e. persons who are the direct beneficiaries of the institutional care of the child. Twelve percent of the worker's time is invested in work with other social service staff (supervisors, psychiatrists, psychologists). Three percent is spent with cottage parents, and another 3 percent with the administrative staff of the agency.

The primary expenditure of workers' time as it is reflected in activity around work unit 5 consists, then, of treatment, review and communication. Treatment, involving the child or his family, absorbs some 43 percent of the time. Review, alone or involving other social service staff, absorbs some 15 to 25 percent of the time. Communication work, alone (writing) or with administration, consumes another 25 to 35 percent.

Work unit 6—discharge

Much like intake and pre-admission, discharge is a period of planning and long-range decisions. The planning emphasis is reflected in an increased time investment (over units 4 and 5) in work with social service (13 percent), with staff of the central agency (5 percent) and with other social agencies (3 percent). Also typical of this period is intensified activity with the child (30 percent of worker's time). Except for the one day of admission, activity with the child reaches a peak in this work unit. The peak seems to be achieved, however, at the expense of work with parents, whose share of the worker's time drops almost exactly 50 percent from work unit 5.[2]

Activity-wise, there is also an increase in functions which accompany intensified planning. Supervisory conference time increases (10 percent of worker's time in work unit 6 as compared with 7 percent in work units 4 and 5), miscellaneous planning and preparation as well as correspondence and reports increase (to 9 percent and 7 percent respectively from 6 percent for work units 4 and 5), and intensified communication is reflected in an increased telephoning (8 percent as compared with 7 percent in 4 and 5).

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[2] It goes down from 15.31 percent to 7.58 percent.

Work unit 7—aftercare

Aftercare consists mainly of work with parents and child. The worker's involvement with the former is up nearly to the level of intake (18 percent of worker's time as compared with 24 percent in intake). Work with the child is no longer as prominent a function as it was when the child was in the institution. Only 13 percent of the worker's time in aftercare is devoted to direct work with the child. Much time in the aftercare period is spent on case recording (often relating to activity in previous work units) and to correspondence and reports on the child's institutional experience.

Work unit 8—special services to closed cases

This work unit involves services mostly rendered in the form of reports. There is some direct contact with both children and parents (5 percent and 3 percent of the worker's time, respectively), but the primary service in this unit is communication.

B. Supplementary Tables on Work Units

Table 65.—Proportion of social work time invested with each category of person in every work unit

[Proportions in percent of total time given by social work in the work unit]

Category of person	WORK UNIT							
	1	2	3	4	5	6	7	8
Child	13.90	10.72	93.09	22.38	26.51	30.25	12.71	4.54
Parent	23.75	10.10	00	11.65	15.31	7.58	18.29	2.91
Relative	1.64	0.81	00	0.91	1.34	1.54	0.60	0.14
Supervisors, psychiatrists, psychologist	18.00	13.44	0.05	12.46	12.21	13.38	7.80	6.26
Cottage parents	00	2.29	1.00	2.72	2.79	2.67	0.19	0.36
Institutional administration	0.57	3.64	0.07	1.29	1.05	1.53	0.40	1.35
Extended agency — (other than above categories)	1.42	4.28	3.26	2.68	2.18	3.85	1.21	3.85
Outside agencies	3.70	0.73	00	1.10	0.87	2.69	4.09	5.44
All others	0.58	0.18	0.82	0.92	0.67	0.90	2.30	0.81
None	36.44	53.81	1.71	43.89	37.07	35.61	52.41	74.34
Total percent	100	100	100	100	100	100	100	100
Total minutes	118,682	39,444	10,803	40,028	299,654	60,814	17,625	7,046

Table 66.—Proportion of social work time by activity in each work unit

[Proportions in percent of total time given by social work in the work unit]

Activity	WORK UNIT							
	1	2	3	4	5	6	7	8
Telephone calls	12.48	5.83	1.16	7.13	6.78	8.17	9.95	8.17
Home visit	0.22	00	00	00	00	00	00	00
Office interview	39.46	35.03	57.11	41.52	48.41	42.57	33.42	8.81
Visits to other places [1]	2.26	0.01	37.56	1.46	1.42	3.61	2.04	1.28
Travel [2]	1.40	6.19	2.68	1.75	0.99	1.87	6.56	0.14
Case recording	17.71	2.79	0.93	12.76	10.44	7.72	12.57	31.85
Correspondence and reports	8.11	9.44	00	4.62	6.32	7.23	8.06	31.12
Planning for conferences	2.05	9.59	00	4.32	1.65	1.35	1.28	0.89
Other preparation	2.53	13.61	0.28	6.56	6.36	9.00	18.84	3.14
Miscellaneous	0.13	00	00	0.40	0.51	0.31	00	0.21
Supervisory conference [3]	8.21	7.06	0.28	6.99	6.95	10.12	3.69	5.39
Other supervisory activity [3]	5.44	10.45	00	12.49	10.17	8.05	3.59	9.00
Total percent	100	100	100	100	100	100	100	100
Total minutes	118,682	39,444	10,803	40,028	299,654	60,814	17,625	7,046

[1] Interview in settings other than the office or the client's home.

[2] Travel not involving activity with client or collateral during the travel process. Work unit 3, for example, consists of considerable actual travel but the travel period is used for client-worker interaction and is designated as "visits to other places."

[3] Activities of supervisory personnel only.

Table 67.—Input of social work[1] time in minutes and cost in dollars in work unit 0, screening

	Screening	Screening to produce one intake [2]	Screening to produce one admission [3]
Approximate per minute cost of staff category (in cents)	5.2		
Number of work units	476		
Mean:			
Work unit time	23.46		
Work unit cost	$1.22	$5.19	$16.13
Minimum:			
Work unit time	5		
Work unit cost	$0.26	$1.11	$3.44
25 percentile:			
Work unit time	10		
Work unit cost	$0.52	$2.21	$6.87
50 percentile:			
Work unit time	15		
Work unit cost	$0.78	$3.32	$10.31
75 percentile:			
Work unit time	25		
Work unit cost	$1.30	$5.53	$17.19
Maximum:			
Work unit time	256		
Work unit cost	$13.31	$56.57	$175.96

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[1] Social work is the only category involved.
[2] It has required 4.25 screenings to net a single intake.
[3] It has required 13.22 screenings to net a single admission.

Table 68.—Time input in minutes and cost in dollars in work unit 1, intake, by category of staff

	Cottage parents	Social workers	Psychi-atrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychol-ogist	Total cost
Approximate per minute cost of staff category (in cents)		5.2	13.6	5.7				2.5		
Percent of work units receiving service by category of staff		100.0	35.2	14.4				57.6		
Number of work units	0	125	44	18	0	0	0	72	0	
Mean time per work unit		506.14	56.64	27.44				131.40		
Cost per mean work unit		$26.32	$7.70	$1.56				$3.29		$38.87
Minimum work unit cost		$0.78	$1.36	$0.57				$0.20		$2.91
25 percentile:										
Work unit time		125	33	15				55		
Work unit cost		$6.50	$4.49	$0.86				$1.38		$13.23
50 percentile:										
Work unit time		390	60	23				125		
Work unit cost		$20.28	$8.16	$1.31				$3.13		$32.88
75 percentile:										
Work unit time		705	70	30				170		
Work unit cost		$36.66	$9.52	$1.71				$4.25		$52.14
Maximum work unit cost		$109.20	$14.96	$3.42				$12.13		$139.71
Adjusted [1] mean cost in dollars:										
6-month base (January–June)		$26.32	$2.71	$0.22				$1.90		$31.15
10-month base (January–October)		$24.61	$3.23	$0.22				$2.55		$30.61

[1] Cost in each category allocated to the total work units rather than to the work units in which the given categories gave service (for example, see table 69 W. U. 2).

Mean number of days in work unit 1—65.17.

Range of work unit in days—1–221.

Table 69.—Time input in minutes and cost in dollars in work unit 2, pre-admission, by category of staff

	Cottage parents	Social workers	Psychiatrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychologist	Total cost
Approximate per minute cost of staff category (in cents)	3.3	6.6	17.3	5.7	...	...	...	2.5	8.9	...
Percent of work units receiving service by category of staff	10.6	100.0	1.3	33.3	...	...	...	53.2	21.3	...
Number of work units	8	75	1	25	0	0	0	40	16	...
Mean time per work unit	92.4	495.0	[2] 28	25.2	...	...	...	41.0	16.6	...
Cost per mean work unit	$3.05	$32.67	$4.84	$1.44	...	...	...	$1.03	$1.47	$44.50
Minimum work unit cost	$1.98	$0.46	...	$0.29	...	...	...	$0.25	$0.27	$3.25
25 percentile:										
Work unit time	60	228	...	10	...	...	...	25	3	...
Work unit cost	$1.98	$15.05	...	$0.57	...	...	...	$0.63	$0.27	$18.50
50 percentile:										
Work unit time	80	466	...	20	...	...	...	40	15	...
Work unit cost	2.64	$30.76	...	$1.14	...	...	...	$1.00	$1.34	$36.58
75 percentile:										
Work unit time	120	730	...	30	...	...	...	45	30	...
Work unit cost	$3.96	$48.18	...	$1.71	...	...	...	$1.13	$2.67	$57.65
Maximum work unit cost	$5.28	$80.85	...	$5.13	...	...	...	$2.88	$3.56	$97.70
Adjusted [1] mean cost in dollars										
6-month base (January–June)	$0.32	$32.67	$0.37	$0.48	...	...	...	$0.55	$0.31	$34.70
10-month base (January–October)	$0.30	$30.15	$0.22	$0.46	...	...	...	$0.74	$0.33	$32.20

[1] Cost in each category allocated to the total work units rather than to the work units in which the given categories gave service (for example, the cost of resident supervisors in this unit is $1.44 for each child they serve directly, but they only serve directly one-third of all the children. Hence, the average cost per child in work unit 2 who *may* get resident supervisor service is $0.48.)

Mean number of days in work unit 2—15.39.

Range of work unit in days—1–51.

[2] One case only.

Table 70.—Time input in minutes and cost in dollars in work unit 3, admission, by category of staff

	Cottage parents	Social workers	Psychiatrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychologist	Total cost
Approximate per minute cost of staff category (in cents)	3.3	6.6		5. ,	15.8					
Percent of work units receiving service by category of staff		100		11.54	98.72					
Number of work units	0	78	0	9	77	0	0	0	0	
Mean time per work unit		144		17	36					
Cost per mean work unit		$9.53		$0.97	$5.69					$16.19
Minimum work unit cost		$0.33		$0.29	$2.37					$2.99
25 percentile:										
Work unit time		80		5	30					
Work unit cost		$5.28		$0.29	$4.74					$10.31
50 percentile:										
Work unit time		145		10	30					
Work unit cost		$9.57		$0.57	$4.74					$14.88
75 percentile:										
Work unit time		200		10	45					
Work unit cost		$13.20		$0.57	$7.11					$20.88
Maximum work unit cost		$21.45		$5.13	$12.64					$39.22
Adjusted mean cost in dollars:[1]										
6-month base (January–June)	0	$9.53		$0.11	$5.62					$15.26
10-month base (January–October)	0.05	$8.14		$0.09	$5.11				0	$13.39

[1] Cost in each category allocated to the total work units rather than to the work units in which the given categories gave service.:
Mean number of days in work unit 3—1.
Range of work unit in days—None.

Table 71.—Time input in minutes and cost in dollars in work unit 4, institutional adjustment, by category of staff

	Cottage parents	Social workers	Psychiatrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychologist	Total cost
Approximate per minute cost of staff category (in cents)	3.3	6.6	17.3	5.7	15.8	7.1	10.1	2.5	8.9	....
Percent of subunits receiving service by category of staff	100	100	8.57	80.00	98.57	17.14	98.57	70.00	12.86	....
Number of subunits	70	70	6	56	69	12	69	49	9	....
Mean time per subunit	1824	468	120	38	113	223	139	110	99	....
Mean time per work unit	3252	835	214	68	202	398	248	196	176	....
Cost per mean work unit	$107.32	$55.11	$37.02	$3.88	$31.92	$28.26	$25.05	$4.90	$15.66	$309.12
Minimum work unit cost	$46.20	$1.19	$13.32	$0.23	$2.53	$3.05	$0.50	$0.23	$0.80	$68.05
25 percentile:										
Work unit time	2696	487	160	18	87	114	95	53	18	....
Work unit cost	$88.97	$32.14	$27.68	$1.03	$13.75	$8.09	$9.60	$1.33	$1.60	$184.19
50 percentile:										
Work unit time	3056	688	214	36	171	355	196	160	89	....
Work unit cost	$100.85	$45.41	$37.02	$2.05	$27.02	$25.21	$19.80	$4.00	$7.92	$269.28
75 percentile:										
Work unit time	3652	1172	303	59	250	456	324	375	160	....
Work unit cost	$120.52	$77.35	$52.42	$3.36	$39.50	$32.38	$32.72	$9.38	$14.24	$381.87
Maximum work unit cost	$279.05	$170.81	$67.82	$24.11	$154.68	$81.65	$143.72	$11.95	$82.24	$1,016.03
Adjusted mean cost in dollars: [1]										
6-month base (January–June)	$107.32	$55.11	$3.17	$3.10	$31.46	$4.84	$24.69	$3.43	$2.01	$235.13
10-month base (January–October)	$109.75	$44.50	$7.33	$3.23	$32.07	$6.17	$25.73	$3.92	$7.18	$239.88

[1] Cost in each category allocated to the total subunits rather than to the subunits in which the given categories gave service:
Mean number of days in work unit 4—53.81.
Range of work unit in days—4 to 205.
Subunit cost (i. e. cost per month in work unit 4)—$131.

Table 72.—Time input in minutes and cost in dollars in work unit 5, life adjustment, by category of staff

	Cottage parents	Social workers	Psychiatrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychologist	Total cost
Approximate per minute cost of staff category (in cents)	3.3	6.6	17.3	5.7	15.8	7.1	10.1	2.5	8.9	....
Percent of subunits receiving service by category of staff	100	99.46	21.68	83.20	96.21	35.23	98.10	41.87	10.43	....
Number of subunits	738	734	160	614	710	260	724	309	77	....
Mean time per subunit	1,672	267	330	36	98	301	157	79	222	....
Mean time per work unit	47,844	7,640	9,444	1,027	2,806	8,616	4,489	2,262	6,354	....
Cost per mean work unit	$1,578.85	$504.24	$1,633.81	$58.54	$443.35	$611.74	$453.39	$56.55	$565.51	$5,905.98
Minimum work unit cost	$603.90	$5.68	$25.43	$3.42	$13.59	$40.47	$8.69	$2.15	$5.34	$708.67
25 percentile:										
Work unit time	39,816	3,375	3,151	285	855	5,698	1,977	570	285	....
Work unit cost	$1,313.93	$222.75	$545.12	$16.25	$135.09	$404.56	$199.68	$14.25	$25.37	$2,877.00
50 percentile:										
Work unit time	47,272	6,008	6,466	570	1,891	7,329	3,660	1,718	630	....
Work unit cost	$1,559.98	$396.53	$1,118.62	$32.49	$298.78	$520.36	$369.67	$42.95	$56.07	$4,395.45
75 percentile:										
Work unit time	54,492	9,815	13,450	1,286	4,066	11,585	5,922	3,004	2,434	....
Work unit cost	$1,798.24	$647.79	$2,326.85	$73.30	$642.43	$822.54	$598.12	$75.10	$216.63	$7,201.00
Maximum work unit cost	$6,303.92	$3,692.11	$6,176.97	$448.25	$3,742.70	$1,517.63	$2,961.93	$150.20	$5,029.39	$30,023.10
Adjusted mean cost in dollars [1]										
6-month base (January–June)	$1,578.85	$501.52	$354.21	$48.71	$426.55	$215.52	$444.78	$23.68	$58.98	$3,652.80
10-month base (January–October)	$1,666.48	$466.69	$295.87	$50.36	$404.60	$182.84	$454.68	$30.90	$51.51	$3,603.93

[1] Cost in each category allocated to the total subunits rather than to the subunits in which the given categories gave service
Mean number of days in work unit 5—863.28
Range of work unit in days—103 to 2,497
Subunit cost (i. e. cost of one month's care in work unit 5)—$127.

Table 73.—Time input in minutes and cost in dollars in work unit 6, discharge, by category of staff

	Cottage parents	Social workers	Psychi-atrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychol-ogist	Total cost
Approximate per minute cost of staff category (in cents)	3.3	6.6	17.3	5.7	15.8	7.1	10.1	2.5	8.9	....
Percent of subunits receiving service by category of staff	100	99.42	13.95	80.81	92.44	11.63	95.35	45.93	20.93	....
Number of subunits	172	171	24	139	159	20	164	79	36	....
Mean time per subunit	1,592	240	302	30	83	334	150	58	230	....
Mean time per work unit	4,980	750	945	93	260	1,045	469	181	720	....
Cost per mean work unit	$164.34	$49.50	$163.49	$5.30	$41.08	$74.20	$47.37	$4.53	$64.08	$613.89
Minimum work unit cost	$87.12	$1.06	$8.13	$0.40	$1.42	$5.40	$0.91	$0.40	$1.42	$106.26
25 percentile:										
Work unit time	4,168	325	345	28	69	569	169	62	31	....
Work unit cost	$137.54	$21.45	$59.69	$1.60	$10.90	$40.40	$17.07	$1.55	$2.76	$292.96
50 percentile:										
Work unit time	4,892	582	869	62	162	773	360	93	62	....
Work unit cost	$161.44	$38.41	$150.34	$3.53	$25.60	$54.88	$36.36	$2.33	$5.52	$478.41
75 percentile:										
Work unit time	5,544	1,054	1,252	116	360	1,664	650	281	250	....
Work unit cost	$182.95	$69.56	$216.60	$6.61	$56.88	$118.14	$65.65	$7.03	$22.25	$745.67
Maximum work unit cost	$448.14	$189.16	$465.37	$60.65	$276.34	$156.63	$178.87	$23.45	$601.46	$2,400.07
Adjusted mean cost in dollars [1]										
6-month base (January–June)	$164.34	$49.21	$22.81	$4.28	$37.97	$8.63	$45.17	$2.08	$13.41	$347.90
10-month base (January–October)	$173.97	$46.90	$22.72	$5.10	$39.99	$7.45	$50.94	$3.04	$14.33	$364.42

[1] Cost in each category allocated to the total subunits rather than to the subunits in which the given categories gave service
Mean number of days in work unit 6—94.4
Range of work unit in days—1 to 213
Subunit cost (i. e. cost of one month's care in work unit 6)—$111.

Table 74.—Time input in minutes and cost in dollars in work unit 7, aftercare, by category of staff

	Cottage parents	Social workers	Psychiatrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychologist	Total cost
Approximate per minute cost of staff category (in cents)	3.3	6.6	17.3	5.7	....	....	10.1	2.5	8.9	....
Percent of subunits receiving service by category of staff	1.92	100	7.69	4.81	....	....	1.92	36.54	1.92	....
Number of subunits	2	104	8	5	0	0	2	38	2	....
Mean time per subunit	10.5	177.8	85.75	12.2	....	....	11	72.76	7.5	....
Mean time per work unit	49	835	403	57	....	....	51	342	35	....
Cost per mean work unit	$1.62	$55.11	$69.72	$3.25	....	....	$5.15	$8.55	$3.12	$146.52
Minimum work unit cost	....	$1.52	$8.13	$1.31	....	....	....	$1.18	....	$12.14
25 percentile:										
Work unit time	....	258	70	23	....	....	....	140	....	....
Work unit cost	....	$21.71	$12.11	$1.31	....	....	....	$3.50	....	$38.63
50 percentile:										
Work unit time	....	587	140	38	....	....	....	188	....	....
Work unit cost	....	$40.26	$24.22	$2.17	....	....	....	$4.70	....	$71.35
75 percentile:										
Work unit time	....	1230	423	61	....	....	....	540	....	....
Work unit cost	....	$86.79	$73.18	$3.48	....	....	....	$13.50	....	$176.95
Maximum work unit cost	....	$222.82	$300.67	7.98	....	....	....	$31.13	....	$562.60
Adjusted mean cost in dollars: [1]										
6-month base (January–June)	$0.03	$48.10	$5.36	$0.16	....	....	$0.10	$3.12	$0.06	$56.93
10-month base (January–October)	$0.09	$65.08	$5.87	$0.18	....	....	$0.09	$4.64	$0.04	$75.95

[1] Cost in each category allocated to the total subunits rather than to the subunits in which the given categories gave service.

Mean number of days in work unit 7—142.77.

Range of work units in days—13 to 443.

Subunit cost (i. e. cost of one month's care in work unit 7)—$12.

Table 75.—Time input in minutes and cost in dollars in work unit 8, special services to closed cases, by category of staff

	Cottage parents	Social workers	Psychiatrists	Resident supervisors	Medical-dental	Remedial teachers	Activities	Clerical	Psychologist	Total cost
Approximate per minute cost of staff category (in cents)	3.3	6.6	17.3	5.7				2.5	8.9	
Number of special services	8	144	10	13	0	0	0	74	2	
Percent of work units receiving service by category of staff	5.3	95.36	6.62	8.61				49.01	1.32	
Mean time per work unit	60	52	90	19				56	18	
Cost per mean work unit	$1.98	$3.43	$15.57	$1.08				$1.40	$1.60	$25.06
Minimum work unit cost	$0.40	$0.33	$2.60	$0.17				$0.25		$3.75
25 percentile:										
Work unit time	12	15	25	5				20		
Work unit cost	$0.40	$0.99	$4.33	$0.29				$0.50		$6.51
50 percentile:										
Work unit time	52	25	105	5				40		
Work unit cost	$1.72	$1.65	$18.17	$0.29				$1.00		$22.83
75 percentile:										
Work unit time	80	65	150	15				80		
Work unit cost	$2.64	$4.29	$25.95	$0.86				$2.00		$35.74
Maximum work unit cost	$5.02	$21.85	$26.12	$7.70				$6.00		$66.69
Adjusted mean cost in dollars: [1]										
6-month base (January-June)	$0.10	$3.27	$1.03	$0.09				$0.69	$0.02	$5.20
10-month base (January-October)	$0.09	$3.30	$0.95	$0.10				$0.98	$0.02	$5.44
Mean based on ratio of special services to number of children discharged [2]	$0.28	$9.32	$2.93	$0.26				$1.97	$0.06	$14.82

[1] Cost in each category allocated to the total work units rather than to the work units in which the given categories gave service.

[2] Adjusted at 2.849 (for every discharged case 2.849 special services are given).

Table 76.—Margin of error in forecasts of 7 months' (April–October) time input per work unit or subunit based on 3 months' (January–March) experience

(Errors in percent of error to actual time input)

Work unit or subunit	Cottage parents		Social workers		Psychia-trists		Resident supervisors		Medical-dental		Remedial teachers		Activities		Clerical		Psychologist	
	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent
1. Intake			22	−47.3											15	−11.3		
2. Pre-admission			29	+18.5			10	−27.4							15	+20.4	6	−17.2
3. Admission			34	−.6					33	−0.5								
4. One month in beginning stay	31	−13.3	31	+19.0			22	+17.0	26	+14.4	7	−25.7	27	+59.4	21	+22.4	3	−44.6
5. One month in "treatment" period	336	−2.1	365	+.02	75	+17.2	305	+16.1	361	+24.2	138	−4.9	366	+34.8	142	−9.3	35	−11.5
6. One month in "discharge" period	63	+10.5	63	+27.0	12	−21.2	49	+4.2	62	+25.6	9	+6.7	60	+51.2	31	+8.3	16	+61.2
7. One month in aftercare			38	−10.4	4	+37.8									21	+6.7		
8. Service to closed cases			47	−21.8											27	−8.4		
Total		−.6		+5.7		+12.6		+13.6		+23.2		−4.8		+39.3		−2.8		+3.3

Total error in minutes....	3, 335	18, 627	6, 463	4, 947	23, 575	2, 652	65, 898	1, 297	972
Staff persons [1] represented by the error..........	≐0. 2	≐0. 5	≐0. 5	≐0. 5	≐1. 0	≐0. 12	≐3. 0	≐0. 12	≐0. 1

−underestimates +overestimates

[1] The variation in time represented by one staff member in each of the several categories is due to variations in weekly time input within the categories and differences in the ratio of time charged to individual children and time worked.

Table 77.—Margin of error in forecasts of 7 months' (April–October) time input per work unit or subunit based on 2 months' (January–February) experience

(Errors in percent of error to actual time input)

Work unit or subunit	Cottage parents		Social workers		Psychiatrists		Resident supervisors		Medical-dental		Remedial teachers		Activities		Clerical		Psychologist	
	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent
1. Intake	......	......	103	−49.6	42	+26.1	......	......	......	......	......	......	......	......	57	−3.8	......	......
2. Pre-admission	......	......	46	+4.6	......	......	14	−37.8	......	......	......	......	......	......	25	−24.1	10	+47.9
3. Admission	......	......	44	−6.1	......	......	......	......	43	−6.0	......	......	......	......	......	......	......	......
4. One month in beginning stay	75	−7.7	75	+40.6	......	......	58	+4.8	75	+13.5	11	−29.8	73	+68.4	50	+14.7	12	−27.1
5. One month in "treatment" period	905	−2.1	884	+2.5	178	+26.7	752	+7.8	849	+20.8	193	−6.2	852	+36.8	409	−8.0	77	+16.0
6. One month in "discharge" period	223	+11.0	221	+25.8	25	−11.5	183	−24.0	209	+31.8	17	−17.2	218	+50.5	104	+11.7	34	+10.7
7. One month in aftercare	......	......	58	−7.3	4	+167.9	......	......	......	......	......	......	......	......	17	+23.8	......	......
8. Service to closed cases	......	......	96	−7.6	......	......	......	......	......	......	......	......	......	......	48	−1.4	......	......
Total		−.2	......	+8.4	......	+22.7	......	+1.4	......	+21.6	......	−8.1	......	+41.2	......	−2.3	......	+8.9

Total error in minutes	939	27, 241	11, 625	529	21, 912	4, 436	69, 185	1, 059	2, 634
Staff persons [1] represented by the error	<0.1	≐0.7	≐0.9	<0.1	≐0.9	≐0.2	≐3.0	≐0.1	≐0.3

−underestimates +overestimates

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[1] The variation in time represented by one staff member in each of the several categories is due to variations in weekly time input within the categories and differences in the ratio of time charged to individual children and time worked.

Table 78.—Margin of error in forecasts of 7 months' (April–October) time input per work unit or subunit based on 1 month's (January) experience

(Errors in percent of error to actual time input)

Work unit or subunit	Cottage parents		Social workers		Psychiatrists		Resident supervisors		Medical-dental		Remedial teachers		Activities		Clerical		Psychologist	
	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent	Number of units in forecast base	Error in percent
1. Intake	......	......	103	−81.3	......	......	......	......	......	......	......	......	......	......	57	−55.3	......	......
2. Pre-admission	......	......	46	−4.9	......	......	14	−20.5	......	......	......	......	......	......	25	+17.8	10	+47.9
3. Admission	......	......	44	−14.4	......	......	......	......	43	−11.5	......	......	......	......	......	......	......	......
4. One month in beginning stay	75	+13.5	75	−4.8	......	......	58	−39.1	75	+3.3	11	−56.5	73	+16.5	50	+21.3	12	+37.3
5. One month in "treatment" period	905	+6.7	884	+9.2	178	+26.2	752	+13.3	849	+18.5	193	−.6	852	+40.8	409	+1.3	77	+19.2
6. One month in "discharge" period	223	+14.3	221	+16.7	25	−13.4	183	−15.5	209	+45.5	17	+52.7	218	+51.9	104	+59.1	34	+58.1
7. One month in aftercare	......	......	58	−1.9	4	+355.7	......	......	......	......	......	......	......	......	17	+33.7	......	......
8. Service to closed cases	......	......	96	+95.4	......	......	......	......	......	......	......	......	......	......	48	+69.1	......	......
Total	......	+8.5	......	+8.6	......	+22.9	......	+4.4	......	+21.2	......	+1.3	......	+41.5	......	+16.1	......	+32.2

Total error in minutes....	43, 775	27, 843	11, 817	1, 608	21, 527	715	69, 696	7, 455	9, 558
Staff persons [1] represented by the error...........	≐2.7	≐0.7	1.0	≐0.2	≐0.9	0.1	3.0	≐0.7	≐1.0

−underestimates +overestimates

[1] The variation in time represented by one staff member in each of the several categories is due to variations in weekly time input within the categories and differences in the ratio of time charged to individual children and time worked.

IV.

APPENDIX TO CHAPTER E

Mean Length of Stay by Characteristics of the Child

[Problems of child and family, intelligence and structure of parental unit]

A question which will occur to many is whether certain characteristics are related to the length of a child's stay and hence to the total cost of his care. The study attempted to answer this question in regard to the following characteristics:

1. Problem of child and family.
2. Intelligence.
3. Nature of the parental unit.

1. *Problem of child and family*

Table 79.—Mean length of stay by characteristics of the child

(Problems of chold and family, according to Klein)

Characteristics of child and family	Number of cases	Mean length of stay in months
Seriously disturbed pre-adolescents	9	24.2
Aggressive delinquents	14	31.7
Severely disturbed adolescents	11	41.6
Unadjusted	41	27.3
Disrupted familial situation (no serious disturbance in child)	12	31.8
All others (mostly "shelter")	2	12.2
Total	89	29.7

Although the table seems to show sizeable differences in length of stay between the groups, the differences between them are not statistically significant.

2. *Intelligence*

Children were grouped into two intelligence categories, one including 56 children with IQ's from 64–104, called the low category; the other including 33 children with IQ's from 105–154, called the high category.

For the low group the average (mean) length of stay is 29.1 months; for the high group, 30.8 months. Again the difference is not statistically significant.

3. *Structure of parental unit*

Under this characteristic, there were three groups: 38 children from complete parental units, 35 children from incomplete units, and 16 children with no parents and no relatives with whom they could live. The respective means for these three groups are as follows: 30.0 months, 27.0 months, 33.6 months. Again, the differences are not statistically significant.[1]

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[1] For all three characteristics—problem of child and family, intelligence, structure of parental unit—the probability of obtaining differences of the magnitude noted is greater than .05.

V.

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VI.

Instruments, Instructions and Codes

Time study of

1. Central administration and division of central program services
2. Cottage parents
3. Social workers
4. Psychiatrists
5. Psychologist
6. Assistant director and resident supervisors
7. Nurses and dental hygienist
8. Remedial teachers; activity staff
9. Clerical staff

Characteristics of children

1. Schedule
2. Coding instructions

12/20/54

To: Staff of Central Administration
and
Division of Central Program Services
From: Martin Wolins
Re: Time Recording

The pilot study in which you participated during the week of November twenty-ninth indicates a need for some minor changes in time recording procedures. In the main the records that you will be asked to keep will not differ markedly from those used in the pilot study. The procedure for recording during the year 1955 will be as follows:

1. Recording will begin on Monday, January 24 and will be continued for the full work week, i. e. until Friday, January 28. Following that time records will be kept every fifth week for a full week. These weeks are so chosen that they will fall at different points in the month.

2. Time record sheets will be supplied to all persons who are keeping records of time investment. A week's supply of record sheets will arrive at your office at the end of the week preceding the week for which records are to be maintained. This will provide us with an opportunity to remind you that recording is due the following week.

3. You begin your record each day by entering your name, title and the current date at the head of the record sheet. Also draw a horizontal line across the sheet to indicate the time at which your work day has started.

4. Your time sheet is divided into columns headed "PCS", "Intake", "FHD & Gr. Res." and "General JCCA". When your work begins you begin to draw a vertical line in the column of the division for which your work is done. Insofar as possible enter your time in only one of the first three columns. This will not, however, be possible to do in some instances. *AT TIMES YOU WILL WORK FOR TWO DIVISIONS AND NO SEPARATION WILL BE POSSIBLE. WHEN THIS IS THE CASE YOU MAY MAKE SIMULTANEOUS ENTRIES IN THE TWO RESPECTIVE COLUMNS.* Such entries are less useful than single column entries but more useful than entries in the column "General JCCA" which you will use when the work pertains to the whole of JCCA and no separation is possible. I want to stress the importance of entries allocating your time among "PCS" and the other divisions as opposed to those ascribing it to "General JCCA". The former are, obviously, the only entries on which a distribution of central administration time can be based. They are also the entries you will find difficult to make. In many instances it will be helpful for you to consider whether a given activity of yours would be performed were not PCS a part of JCCA. Also you may wish to consider the converse: would the activity be performed by PCS were it an independent agency? When the answer to the former question is "no" charge the time to "PCS". When the answer to the latter question is "no" charge it to the other divisions. The time spent on some activities will lend itself to a breakdown by divisions even though the activity may be on behalf of all of the divisions. For example, a conference may deal with matters affecting two or more divisions but the time devoted to consideration of each division may at times be isolated. *YOUR ESTIMATED DISTRIBUTION OF TIME WOULD BE PREFERABLE TO AN ENTRY IN "GENERAL JCCA".*

5. At the conclusion of each day please turn in your completed time sheets to the office manager. The office manager will, in turn, forward the completed time sheets to the research staff at PCS.

JCCA INSTITUTIONAL COST STUDY

WUS Inst. Form 6
Time Log Name .... Date ....
Central Administration Mo.—Day
and Program Services Title ....

Instructions: Chart the distribution of your time by running a vertical line down the column describing the division in which or on behalf of which you worked. Vertical lines should connect the appropriate quarter-hour horizontal lines. Vertical lines should be limited to a single column whenever possible. The lines may run simultaneously in two columns when your activity is on behalf of two divisions, but not on behalf of general JCCA. Vertical lines should account for all working time including overtime, but excluding lunch time unless lunch time is spent on agency business.

Time	PCS	Intake	FH D & Gr. Res.	Gen'l JCCA	Time	PCS	Intake	FH D & Gr. Res.	Gen'l JCCA
8 AM					3:30				
8:15					3:45				
8:30					4 PM				
8:45					4:15				
9 AM					4:30				
9:15					4:45				
9:30					5 PM				
9:45					5:15				
10 AM					5:30				
10:15					5:45				
10:30					6 PM				
10:45					6:15				
11 AM					6:30				
11:15					6:45				
11:30					7 PM				
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12:30					8 PM				
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1:45					9:15				
2 PM					9:30				
2:15					9:45				
2:30					10 PM				
2:45					10:15				
3 PM					10:30				
3:15					10:45				
					11 PM				

J. C. C. A. INSTITUTIONAL COST STUDY

[Instructions for Cottage Parents at PCS]

The purpose of the Work Unit Study is to develop and test a method for determining the unit costs of providing institutional care. Unit cost data have many uses, but we are primarily concerned now with obtaining these data in a way which will prove useful in performance-type budgeting, that is, in relating financial planning to program objectives.

The method which we are using is to analyze the type of service that the agency provides (i. e. institutional care) into the essential phases or *work units* which comprise the total process of providing a completed service. Cottage Parents will record on the Work Unit Record the time invested in completing the various work units. The Work Unit Records will be used by the research staff, along with financial and other data to determine the costs of providing services to children.

Each cottage parent will record each designated day during the study period the time that he devotes to activities which can be related to a given cottage, child or group of children.

Use of Work Unit Record

The Cottage Parents' Work Unit Records will be identified by their name, title, and the date at the top of the form.

Cottage Parents will use a separate line to describe each activity which can be related to a given child, cottage or group. Each activity of Five minutes duration or longer should be separately listed. Include activities carried on during overtime work, lunch periods, or social occasions.

Instructions for entries to be made in each column of the Work Unit Record follow.

COLUMN A—Case Name

The cottage parents' activities will generally pertain to all the children in his cottage, a group of children, or a single child in his cottage. When the activity pertains to one child in the cottage, the name of the child (last name first) will be entered in Column A. When the activity pertains to several children, enter the name of each child on a separate line. Activities pertaining to *all the children in the cottage* are noted in Column A with the number of the cottage. (For example: Cottage 11, Cottage 17, etc.) Whenever an activity pertains to four or more children, it is considered an activity pertaining to the whole cottage.

When the Column A entry consists of several names all relating to the same activity bracket these names and use only one entry in Column B "activity" and in Column C "activity with". You may also have only one entry in the time columns D and E and F. However, if you believe that the time given to the several children was not equally allocated, you may estimate the time given to each in Column F.

Refer to the material following, for other instructions pertaining to the completion of Columns B, C, D, E, F.

COLUMN B—Activity

Cottage parents' activities will fall into a number of major groups. These may in general be categorized in terms of the purposes of the activities. The several activity groups will be coded as indicated below. CIRCLE THE LETTER IN COLUMN B REPRESENTING THE ACTIVITY YOU ARE PERFORMING.

C—Counseling—Supervisory functions of the cottage parent.

Activities such as supervision of children at mealtimes, inspections of children to determine medical status, or merely being with the children. (Most of the activities of the cottage parent that are performed relative to the total cottage population fall into this code.) Included here are conferences and meetings and other activities that deal with the cottage population as a whole.

I—Individualization

Includes all activities whose primary object is to attend to the child as an individual or as a member of a sub-cottage size group (less than four children). Conference with individual children, shopping trips for individuals or small groups, settling of arguments, help with homework, discipline when it is not imposed on the cottage as a whole—all of these activities are to be considered as Individualization. Also included here are conferences or interviews that deal with individual children and other activities pertaining to individual children in the cottages.

H—Household maintenance

Includes all activities dealing with the maintenance of the cottage itself as a physical plant. Requisitions for food stuffs, repairs, laundry, cleaning supplies, etc. as well as preparation of meals, decoration of the cottage unless these are done by the children (and then the classification is "C" or "I"), will all be included in this category.

M—Miscellaneous

Use this code for activities not included in the categories above. Place an asterisk (*) next to each miscellaneous entry and explain in "Notes" the nature of each activity listed as Miscellaneous.

COLUMN C—Activity with

This column is used to indicate the persons with whom the activity noted in Column B was performed. There will be, in the main, four categories of such persons. Each category will be designated by a letter printed in Column C. CIRCLE THE APPROPRIATE LETTER OR LETTERS.

Child or children	C
Parents	P
Staff	S
Other	O
None	N

There must always be an entry in Column C. When no other person is involved in an activity you are performing CIRCLE THE LETTER "N" on the line of the activity in Column C.

COLUMNS D, E, F—Duration of Activity

COLUMNS D and E—Exact Time

Record in Column D the clock time at the beginning of an activity and in Column E the time when the activity is terminated. Time should be recorded to the nearest five minutes. For example, an activity beginning at 10:32 and ending at 11:17 should be recorded from 10:30 to 11:15. Time should be recorded at the beginning of, and immediately after the completion of an activity, whenever possible. Only such time that is recorded currently should be reported in Colums D and E.

COLUMN F—Estimated Time

In many circumstances it is not possible for cottage parents to record currently the time invested in some activities. In those instances the estimated duration of the activity should be entered in Column F in minutes, rounded to the closest five minutes. For example, 80 minutes or 115 minutes.

COLUMN G—Remarks

You may enter here any brief comment which in your opinion will help the research staff better understand your entry on the line. You may expand on your remark in "Notes" but always place the line number before your explanation so it will be clear what item your note refers to. You may also use the space designated for "Notes" to elaborate the entries in the other columns of the card. When such elaboration is deemed necessary by you, place an asterisk (*) by the item and refer to it by line number in the notes.

December 27, 1954.

To: Cottage Parents
From: Martin Wolins
Re: Institutional Cost Study Recording

The following material is in large part the result of findings of the Pilot study, and discussions with you individually and in the staff meeting. Please read it carefully as much of it will aid you in preparing your records and will also make your recording less difficult and more productive.

1. In general, your entries in the pilot study were meaningful and noncontradictory. Your explanations were helpful to us whenever you made them. I was very impressed with your concern about the accuracy of your records and your desire to understand what we wanted to get out of them. At the same time, there are a few of you who either work differently or who understood our instructions differently. (For example: Entries saying "Counseling 7 AM–10 PM" are not valuable and I believe possibly not accurate.)
2. Of course, the limit of a minimum of 10 minutes set for an activity with a child before it may be recorded has contributed greatly to the recording problem. In consultation with some of you it has become evident that this limit needs to be revised downward. *THE PRESENT TIME LIMIT FOR RECORDABLE ACTIVITIES IS 5 MINUTES.*
3. Record keeping in the study will begin on January first 1955. Some of the cottage parents on duty then will keep records. As in the pilot so also in the actual study there may be one, two or even three cottage parents in the cottage recording on a given day. There may also be no recording by anyone in the cottage on a particular day.
4. Record keeping procedure will be as follows:
   a. Your card with a list of the children in your cottage will be delivered to the cottage parent on duty on the day preceding the date of recording. The cottage parent receiving the card (which will come in an envelope) will insert it into the pocket at the end of your cottage log book. *IT IS IMPORTANT THAT YOU CHECK THE LOG BOOK TO FIND OUT WHETHER YOU NEED KEEP RECORDS ON THE FOLLOWING DAY.* We are delivering some extra cards to each cottage in case you should need them. These are to be stored near the log book.
   b. On the designated day (the date will be on the card) you begin recording when you begin your duty. It has been found most convenient to record at the following points in the day:

      When you return to the cottage after breakfast.
      When you return to the cottage from lunch.
      When you return to the cottage from dinner.
      Immediately after the children are bedded down.

EACH OF THESE TIMES REVIEW THE LIST WITH THE NAMES OF THE CHILDREN. IF YOU ESTIMATE THAT YOU HAVE SPENT A TOTAL OF 5 MINUTES OR MORE WITH AN INDIVIDUAL CHILD DURING THE PERIOD IMMEDIATELY PRECEDING YOUR RECORDING THEN YOU ENTER HIS NAME IN COLUMN A AND CIRCLE "I" IN COLUMN B. Remember that this includes only time spent with or for an individual and not his share of time spent with the cottage as a whole. Time spent with the cottage as a whole should be entered as Cottage #—in Column A and the "C" should be circled in Column B.

c. At the conclusion of recording replace your card into its envelope and return it to the log book. The card will be picked up the following afternoon. In the event that you do not wish to have your card picked up you may return it in person to the Research box at the switchboard.

5. You will find that the new card is somewhat different from the one used by you during the pilot study. It is somewhat more compact, easier to handle and simpler to use. Note especially the letters in Column B and Column C. In Column B "Activity" the letters stand for *C*ounseling, *I*ndividualization, *H*ousehold, and *M*iscellaneous. In Column C "Activity with" the letters stand for *C*hild, *P*arent, *S*taff, *O*ther and *N*one. Instead of writing out your entry, you need only circle the proper letter.
6. In recording please observe the following rules:

a. Check the name, title and date on the card.

b. Do not enter anything but names of children or cottage number or PCS in Column A. Enter the full last name of each child you list.

c. Circle only *one* letter in Column B on any given line.

d. You may circle several letters in Column C if necessary.

e. When you enter actual time (Columns D, E) it is not necessary to enter estimated time (Column F). You enter either one or the other.

f. When you report on several children together put a bracket around their names.

g. Do not write in the very small squares you see all over the card. They are for office use only.

7. There are a few suggestions on recording items which may have given you special difficulty:

a. When you spend time with one child discussing others in the cottage charge the time to the child you are seeing.

b. Note time you spend with children who are not living in your cottage.

c. Record staff meetings as service to your total cottage and as C, H, or M in Column B according to the subject discussed. Record team meetings as either total cottage or individual child and as I, C, H, or M in Column B according to the subject discussed. Record supervisory meetings also in terms of what is discussed. If you discuss the cottage or the children in it you may charge it to the cottage. If you discuss a specific child you charge your time to that child.

d. The time you spend in activity pertaining to children of more than one cottage you record in Column A as PCS. This will be an infrequent occurrence such as coat room duty or accompanying children on trips to the city.

8. I know that throughout the study period you will have many questions. Do not hesitate to ask them. The research staff will always be glad to explain why something is being done and how it fits in with the overall pattern of the study. Remember that this is a pioneering study the value of which will in large measure be determined by our ability to develop good techniques and by your cooperation and interest in helping us carry it out.

1/20/55

To: Cottage Parents
From: Mr. Wolins
Re: Recording

1. *Please* enter only one name on one line in Column A. If you are recording a joint activity for two or three children, enter the name of each child on a separate line and draw a bracket around the lines.
2. There is no such thing as H (Household) in Column B with a child (C—in Column C). If you did some household activity with 1, 2 or 3 children, it is I (Individualization). If you did some household work with 4 or more children, it is C (Counsel).
3. You cannot have C (Counsel) in Column B when you enter the names of 1, 2 or 3 children in Column A. If there are three or less children it is individualization.
4. There should always be an entry in each of the first three columns. If you do not enter a child's name in Column A, the cottage number should be entered. In Column B only one letter should be circled for each entry. In Column C you will usually have only one letter circled but you may have two. Example: If you individualized with a child and his parent together.
5. If you have any activity that is done for a specific child (even when he is not present) it is individualization. Example—fixing a child's clothing while he is at school.
6. You are doing summary recording. This means that four times a day you stop and review the list of names attached to your record card and decide with which child you had spent altogether throughout the preceding several hours (from the time he got up or from the time you last recorded) five minutes or more. This means that you have spent that time with one, two or three children to the exclusion of (for all practical purposes) the other children in the cottage. Following your recording of work with individual children, record any miscellaneous and household activities. Then, on the following line, make a Counselling entry for the total period of your present recording. The research staff will then subtract all your other entries from the last one and consider the remainder as time spent with or on behalf of all the children in the cottage in counselling activities. We ask that you do not do this subtraction. All of the entries of time spent for individual children which you are entering in summary form must of course be estimates. Please

enter them as such in Column F. However, the entry following these which pertains to the total time period for which the recording is being done, should be entered in actual time in Columns D and E.

7. Do not write in any of the little boxes on the card. Please try not to have your entries written in such a way that some of the letters cover these little boxes.

WS Ins. Form 7
3/1/55

INSTITUTIONAL COST STUDY
SCREENING

Definition: Screening is that segment of the casework process which begins with the initial request for service reaching a social worker in ID, and ends with the formal assignment of the case to a specific worker, with a referral to another agency, a rejection or a withdrawal of the case.

Time Recording: Any time spent in screening should be recorded. Unlike the other parts of the study, a case in screening is not limited to a child but includes the entire family.

Worker (Initials)-------------------- Date------------------

Personal——

Inquirer's Name-------------------- Agency——

Family Receiving Service-------------------------------------
(last name)

--------------- (man's name) --------------- (woman's name)

WORKER'S ACTIVITY AND FINAL CASE DISPOSITION

Activity (use code)	Activity with—(Abbrev)	Time			Remarks
		Actual		Estimated	
		From	To		
B	C	D	E	F	G

Disposition
(check one)
ID Appointment made ....
Service terminated ....

Recording in Columns B, C, D, E, F, G above is identical with that done on the Case Work Unit Record now used to record Intake activity.

CWLA—Children's Bureau
January 1, 1955

J. C. C. A. INSTITUTIONAL COST STUDY

Instructions for Social Workers and Supervisors at PCS and in the Intake Department in the Completion of WUS Inst. Form 1

The purpose of the Work Unit Study is to develop and test a method for determining the unit costs of providing institutional care. Unit cost data have many uses, but we are primarily concerned now with obtaining these data in a way which will prove useful in performance-type budgeting, that is, in relating financial planning to program objectives.

The method which we are using is to analyze the type of service that the agency provides (i. e. institutional care) into the essential phases or *work units* which comprise the total process of providing a completed service. Social Service Staff will record on the Work Unit Record (WUS Inst. Form 1) the time invested in completing the various work units. The Work Unit Records will be used by the research staff, along with financial and other data, to determine the costs of providing services to children.

It is hoped that, within the limits imposed by the study design, administratively useful analyses, in addition to those involved in developing an improved budget procedure, may be made by the agency as by-products of the study.

Each Social Service staff member and student will be asked to record each day during the study period the time that he devotes to activities which can be related to a given case or group of cases.

Use of W. U. S. Unit Record

Social Service staff members will identify their Work Unit Records by entering their names, title and the date at the top of the form.

A separate line should be used to describe each activity which can be related to a given case. Each activity of five minutes duration or longer which can be related to a specific case should be separately listed. This should include activities carried on during overtime work, lunch periods, or social occasions.

Instructions for entries to be made in each column of the Work Unit Record follow.

COLUMN A—Case Name

The name of the case at PCS or in Intake is always that of the child. Each child is considered as one case even though the activity in question may be with regard to several children (ex.—Siblings whose parents are being interviewed). Activities with parents or collateral will (as all activities with or regarding the child) be entered under the child's name. In the event that the activity does not pertain to any one case, it will pertain to a caseload or to the population of PCS as a whole. When the activity pertains to the caseload of the worker, the entry will read "own caseload." When the activity pertains to PCS as a whole, the entry will be "PCS".

SUPERVISORY ACTIVITY WILL LIKEWISE BE DESIGNATED AS PERTAINING TO A SPECIFIC CASE OR TO THE CASELOAD OF THE SUPERVISEE.

COLUMN B—Activity

Code 1—Telephone call

Any telephone conversation pertaining to worker's functions regardless of initiating person, source of origin and point of termination.

Code 2—Home visit

Any visit to a home. Does not include visits to institutions (See Code 4).

Code 3—Office interview or conference

Any interview or conference conducted in the agency's offices either in Pleasantville or in New York City.

Code 4—Visits to other places

Interviews conducted other than by telephone or in the home or in the agency's offices. Examples are: visits to hospitals, clinics, schools, institutions, offices of collateral references.

Note: Time spent in waiting for appointments falling into Codes 2, 3, 4 is to be included in the time recorded for the subsequent activity, unless the time is spent on another activity. For example, if while waiting for the following client who is late the worker does some recording, then the activity is "recording" (Code 6) not "waiting for office interview (Code 3).

Code 5—Travel

Charge travel time to the case for which you are traveling, whether the trip begins at the office, your home or elsewhere. If the purpose of the travel relates to more than one child, list the case names in Column A and draw a bracket around them, then make only one entry for the group in Columns B, C, D and E, or F.

Travel back to the office or to your home from an interview or som other activity is included in this code. It is treated in the same manner as travel from the office or from your home to an activity

Note: Instructions for Code 5 imply that the purpose of the travel is for the worker himsel to get to or from the place where the work is done. In such instances the entry in Column C "Activity with" is "none". In many instances, however, the purpose of the travel is primarily to transport or accompany a child. In such cases the child or children transported should be identified in Column C. (It will often be the same person listed in Column A under "Case Name").

In other situations workers may take a child or other person for a drive to provide an opportunity for an interview. If this is the major purpose of the activity it should not be shown as "Travel" but as "Visits to other places" (Code 4).

Code 6—Planning and preparation of case recording

Includes the preparation, dictation, and proofing of case records. *When Code 6 is used indicate next to it the period which the recording covers.* Research staff will then allocate recording time to the appropriate work unit.

Code 7.—Planning and preparation of correspondence and reports

Includes the preparation and dictation or actual execution of letters and reports.

Code 8.—Planning and preparation for supervisory, administrative or psychiatric conferences

Includes the time invested in the preparation for a conference with the supervisor, psychiatrist, psychologist, cottage parent, or administrative personnel. (Time spent in the conference proper is to be reported under Code 3.)

Code 9.—Other planning and preparation

Any other planning, preparation and "desk work" which is part of a worker's function but which cannot be classified under Codes 6, 7, or 8 should be reported here.

Note: Provision is not made for reading of case records as a separately recorded activity. Reading of case records should be recorded under the activity for which the reading is being done. For example, reading of records preparatory to recording or to supervision should be included in Codes 6 or 8 respectively.

Code 10.—Miscellaneous

Use this code for activities not elsewhere classified. Explain in "Notes" the nature of each activity listed as miscellaneous.

Supervisory Codes

Supervisory staff will use the above activity codes to record their direct work with cases. This will include time invested in cases for which they are directly responsible and in situations in which they are acting for the responsible worker. In addition, supervisory staff will use the following codes in Column B:

Code X.—Supervisory conference.

An interview or conference dealing with a case of a worker for whom the supervisor is responsible. (The worker will report the same conference under Code 3—"Office interview or conference". The time entries for the two will, of course, be the same.) This code includes psychiatric or administrative conferences dealing with specific cases.

Code Y—Other supervisory activities

Included here are all other supervisory activities e. g. preparation for a supervisory conference, reviewing the work done on a case for administrative decisions, conferences on agency policy, etc.

COLUMN C—Activity with

This column is used to indicate the person with whom the activity noted in Column B was carried on. Use the following abbreviations to describe these persons.

Child	Child.
Parent(s), natural or surrogate	Parent.
Social Work Supervisor or Caseworker	Soc. Serv.
Psychiatrist	
Psychologist	
Cottage Parent	Cott.
Cottage Parents' Supervisor	Adm.
Children's Supervisor	
Activities Supervisor	
Director or Asst. Director	
Other staff of PCS or JCCA	Other.
Staff of other social agency	Agency's name.
All other	State professional group to which they belong; e. g. "Teacher," "Principal," etc.
None	None.

In this column should be entered abbreviations for all persons involved in the activity. However, persons whose presence is incidental or casual to the purpose of the activity should not be included.

There should always be an entry in Column C. If no other person is involved in the activity performed, the entry should read "none."

COLUMNS D, E, F—Duration of Activity

Columns D and E—Exact Time

Record in Column "D" the clock time at the beginning of an activity and in Column "E" the time when the activity is terminated. Time should be recorded to the nearest 5 minutes. For example, an activity beginning at 10:32 and ending at 11:17 should be recorded from "10:30" to "11:15." Time should be recorded at the beginning of, and immediately after the completion of an activity. The accuracy of the data will largely depend on the extent to which time is recorded currently. Only such time that is recorded currently should be reported in Columns "D" and "E."

Column F—Estimated Time

Under some circumstances it is not possible to record currently the time invested in some activities. In these instances the estimated duration of the activity should be entered in Column "F" in minutes, rounded to the closest 5 minutes. For example, "80" minutes or "115" minutes.

Recording of Joint Activities

In general, activities will be with or pertain to individual children and no division of time among children will be necessary. However, there are situations in which a given activity relates to two or more children and these require special consideration in the recording. One of these situations has already been considered in the instructions for reporting travel involving several work units. (Column B–Code 5.) Another example may be an interview with a cottage mother or an activity worker. If the interview is confined to one child only, then, of course, the time it consumes is regarded as spent in the case of the one child. If, however, the work actually relates to more than one child the recording is to be done in one of two ways:

Option 1. If the work actually concerned, let us say, three children, the worker can list the names of each child on a separate line and record time in columns "D" and "E" as follows:

From	*To*
10:00	.....
.....	.....
.....	11:30

The research staff will then arbitrarily allocate an equal part of the total elapsed time to each child. (If the worker fails to record immediately after such an interview, an entry of 80 minutes should be made in Column "F," with a bracket indicating the three lines to which the entry relates.)

Option 2. If the work actually relates to three children but the worker believes that he can make a more accurate estimate of the time devoted to each, than would be arrived at by an equal division of time, he should list all children and enter in Column "F" the estimated number of minutes that were devoted to each.

A somewhat analogous situation arises in a supervisory conference during which several children may be discussed. Here the worker should decide whether a single time entry should be made in Columns "D" and "E," spanning the names of all the children discussed, or whether the time should be estimated for each child and shown in Column "F." In either event, an activity should be shown on a separate line for each child for whom 5 minutes or more is taken.

Time recorded under Code 7, "Planning and preparation of correspondence and reports," can often be shown only as a joint activity as described above. *A distribution of time among several cases on the basis of a fair estimate will be much more accurate than the complete omission of such time from the Work Unit Record.*

COLUMN G—Remarks

You may enter in this column any brief comment which in your opinion will help the research staff better understand your entry on the line. You may expand on your remark in "Notes" but always place the line number before your explanation so it will be clear to what item your note refers. You may also use the space designated for "Notes" to elaborate on entries in the other columns of the card. When such elaboration is deemed necessary by you, asterisk (*) the item and refer to it by line number in the "Notes."

12/21/54

To: Social work supervisors
Social caseworkers
Social casework students
From: Martin Wolins
Re. Recording for the Institutional Cost Study

Regular time recording in the study begins on the first of January for those staff members who are on duty on that date. Social service personnel will begin recording on Monday, January 3. Recording will, in the main, be similar to that maintained during the November pretest period. It will involve, however, the use of a slightly different record sheet (card) and the reporting of changes in work unit position of every case. In the main, the pretest has shown that adequate recording can be and has been produced by all members of the social service staff. It may be anticipated that recording will become less troublesome as the categories and codes become clarified and problems of procedure are resolved.

A number of points relative to recording need to be reviewed at this time for purposes of clarification:

I. Pertaining to all social service personnel

A. Each member of the staff will receive a supply of record cards at the beginning of every month. A new card will be used by the staff member each day. It is very important that the completed card be deposited in my box at the conclusion of each work day or no later than the following work day. If you are unable to return the completed card when it is due, please leave word to that effect with someone of the research staff or with your supervisor.

B. The completion of a card's heading should be one of the first activities of your work day. The heading should include your name, title, and the date when the card is being used. During the pretest this information was not always entered.

C. The entries in Column A "Client's Name" are limited as follows: the last name and first initial of a child; "own caseload"; "PCS"; "worker X's caseload". The use of these categories has been explained in the instructions. *There should be no other entries in Column A.* (Caseworkers and students will only rarely require the use of the last two entries.)

D. Please do not enter in Column B "Activity" more than one code. If you are performing two activities simultaneously, the primary activity should be the only one recorded. Supervisor's conferences with the supervisee will be recorded only as "X", preparation for supervision will be recorded only as "Y".

E. There may be multiple entries in Column C "Activity with —" as required by the situation. This is the only column in which multiple entries are not precluded. (The listing of "parent" in Column C includes guardians and responsible or interested adult relatives).

F. Please resort to the use of Column F "Estimated Time" as rarely as possible. Your time entries should be predominantly clock time entries suitable for Columns D and E.

G. Charging of travel time. Travel time should be charged to the case which was the primary reason for the travel.

H. Recording of psychiatric conference time. Psychiatric conferences appear to be best charged as follows:

1. All staff members whose case is presented to such a conference charge all of the time spent on the given case to the case in question.

2. Staff members who are attending the conference for instructional purposes charge this time to "own caseload". (The corresponding entry for supervisors is "PCS").

I. Time spent with or on behalf of children not in your caseload should be recorded in exactly the same manner as time spent on behalf of someone in your caseload.

II. Pertaining to supervisors only.

A. When your entry in Column B "Activity" is either "X" or "Y", the entry in Column A "Client's Name" must be either "worker X's caseload" or the name(s) of child(ren). It cannot be "own caseload".

B. Time spent in a specific supervisory conference is the same for both participants (i. e. the worker and the supervisor). The time entries resultant should be identical.

C. In some instances two supervisors will confer about the caseload of a worker. Such activity is entered as "X" or "Y" in Column B, (i. e. it is considered to be supervision on the part of both supervisors).

D. Whenever a supervisor's activity pertains to cases or matter not assigned to a supervisee, then the entries in Column B "Activity" are never "X" or "Y" but the codes from 1–0 (i. e. the same as for caseworkers).

Although I have attempted to cover in this memorandum as many points as possible, it will undoubtedly fail to answer some questions that will arise in the process of recording. Please do not hesitate to raise such questions with the research staff. The clarification of specific points in the study will not only help you with recording but will also improve the quality of the data. As additional interpretations are arrived at they will be circulated among you so that as much consistency of recording as possible is obtained.

NOTE: There will be a discussion of work Units and time recording as a whole at the staff meeting Friday, December 31.

12/16/54 CWLA—Children's Bureau

J. C. C. A. INSTITUTIONAL COST STUDY

Instructions for Psychiatrists in Completion of WUS Inst. Form 3

The purpose of the Work Unit Study is to develop and test a method for determining the unit costs of providing institutional care. Unit cost data have many uses, but we are primarily concerned now with obtaining these data in a way which will prove useful in performance-type budgeting, that is, in relating financial planning to program objectives.

The method which we are using is to analyze the type of service that the agency provides (i. e. institutional care) into the essential phases or *work units* which comprise the total process of providing a completed service. Psychiatrists at PCS, along with other staff are being asked to record on the Work Unit Record (W. U. S. Inst.) the time invested in serving specific children. The completed Work Unit Records will be used by the research staff, along with financial and other data to determine the costs of providing services to children.

It is hoped that, within the limits imposed by the study design, administratively useful analyses, in addition to those involved in developing an improved budget procedure, may be made by the agency as by-products of the study.

Each psychiatrist will be asked to record each designated day during the study period the time that he devotes to activities which can be related to a given child or group of children.

Use of W. U. S. Unit Record

Psychiatrists will identify their Work Unit Records by entering their names, title and the date at the top of the form.

A separate line on the Record should be used to describe each activity which can be related to a given child or group. Each activity of five minutes duration or longer should be separately listed. This should include activities carried on during overtime work, lunch periods, or social occasions providing these activities are part of the psychiatrists' functions at PCS.

Instructions for entries to be made in each column of the Work Unit Record follow.

COLUMN A—Case Name

In general, a specific activity by the psychiatrist will pertain to one child only. Occasionally the activity will pertain to several children or even to the total population of PCS.

When the activity pertains to one child, the name of the child (last name first, please) should be entered in Column A.

Similarly, when the activity pertains to several children, as may be the case when a family is discussed and two or more siblings from that family are in placement, the name of each child should be entered in Column A.

Occasionally, however, the psychiatrist's activity will concern all of PCS. This will be the case when the activity is a conference on PCS policy, for example, or when the psychiatrist conducts a seminar for staff. In such instances the entry in Column A should read "PCS".

COLUMN B—Activity

The entries in the Activity Column are all in the form of abbreviated descriptions of the activities. The psychiatrist's activities at PCS appear to fall into the following categories:

Treat.—includes all forms of activity with the patient which is intended to have therapeutic effects. Such activities as office interviews, or play therapy or any other involvement with the patient for therapeutic purposes are subsumed under this term and should be recorded as treatment in Column B whenever they occur. This category also includes contacts the primary purpose of which is diagnosis.

Conf.—includes all conferences and interviews with staff or other persons except those intended to have direct therapeutic effect. Staff meetings and case conferences are included in this category.

Rec.—includes the preparation, proofing and dictation of records.

Misc.—includes miscellaneous office activity such as statistical reporting, correspondence and telephoning.

Note on time spent in waiting for an appointment or preparing for an activity: All time spent in actual waiting is to be included in the activity for which the waiting is done and should be charged to the child who is late for the appointment, unless the time is used for activity in another case. All preparation for activities is to be included in the activities for which the preparation is done.

COLUMN C—Activity with

This column is used to indicate the person or persons with whom the activity noted in Column B was carried out. CIRCLE THE APPROPRIATE LETTER(S) IN COLUMN C.

Child	C
Social worker, supervisor, psychologist, psychiatrist	S
Other PCS Staff	P
Others	O
None	N

This column should indicate all categories of persons involved in the activity. However, persons whose presence is casual or incidental to the purpose of the activity should not be included.

There should always be an entry in Column C. If no other person is involved in the activity, the entry should be "none", i. e. a circle around the letter "N".

COLUMNS D, E, F—Duration of Activity

Columns D and E—Exact Time

Record in Column D the clock time at the beginning of an activity and in Column E the time when the activity is terminated. Time should be recorded to the nearest five minutes. For example, an activity beginning at 10:32 and ending at 11:17 should be recorded from "10:30" to "11:15". Time should be recorded at the beginning of and immediately after the completion of an activity. The accuracy of the research will depend on the extent to which time is recorded currently. Only such time that is recorded currently should be recorded in Columns D and E.

Column F—Estimated Time

Under some circumstances it is not possible to record currently the time invested in some activities. In those instances the estimated duration of the activity should be entered in Column F in minutes, rounded to the closest five minutes. For example "80" minutes or "115" minutes.

Recording of Joint Activities

Some of your activities may pertain to more than one child. It will be necessary to allocate the time spent on the activity to the individual child and such an allocation may be made either by you or by the research staff. In the event that your activity pertains, let us say, to three children you may enter their names in Column A, draw a bracket around them and then proceed as if they were one child. In Columns D and E the entry will appear as follows:

From	*To*
10:10	....
....	....
....	11:30

The research staff will then arbitrarily assign an equal part of the elapsed total time (80 min.) to each one of the three children. (If the recording is not done immediately after the activity, the entry will be "80" in Column F and research staff action will again be as above.)

In some instances, however, an equal allocation of time will be less accurate than your estimate of time spent with each one of the children. When such is the case enter in Column F the estimated number of minutes, rounded to the nearest five minutes, devoted to each child.

COLUMN G—Remarks

You may enter in this column any brief comment which in your opinion will help the research staff better understand your entry on the line. You may expand on your remark in "Notes" but always place the line number before your explanation so it will be clear to what item your note refers. You may also use the space designated for "Notes" to elaborate on entries in the other columns of the card. When such elaboration is deemed necessary by you asterisk (*) the item and refer to it by line number in the notes.

12/17/54 CWLA—Children's Bureau

J. C. C. A.—INSTITUTIONAL COST STUDY

Instructions for the Psychologist in Completion of W. U. S. Inst. Form 3.

The purpose of the Work Unit Study is to develop and test a method for determining the unit costs of providing institutional care. Unit cost data have many uses, but we are primarily concerned now with obtaining these data in a way which will prove useful in performance-type budgeting, that is, in relating financial planning to program objectives.

The method which we are using is to analyze the type of service that the agency provides (i. e. institutional care) into the essential phases or *work units* which comprise the total process of providing a completed service. The Psychologist will record on the Work Unit Record (W. U. S. Inst. Form 3) the time invested in various activities and cases. The Work Unit Records will be used by the research staff, along with financial and other data to determine the costs of providing services to children.

It is hoped that, within the limits imposed by the study design, administratively useful analyses, in addition to those involved in developing an improved budget procedure, may be made by the agency as by-products of the study.

The Psychologist will record each designated day during the study period the time that he devotes to activities which can be related to a given child, a group of children, or the PCS as a whole.

Use of W. U. S. Unit Record

The Psychologist will identify his Work Unit Records by entering his name, title, and the date at the top of the form.

In the Record itself a separate line is to be used to describe each activity which can be related to a given child or group. Each activity of five minutes duration or longer should be separately listed. Include activity carried on during overtime work, lunch periods, or social occasions.

Instructions for entries to be made in each column of the Work Unit Record follow.

COLUMN A—Case Name

In general, the psychologist's activity will be in relation to individual children. In all such cases the entry in Column A will consist of the name of the child (last name first, please). On occasion the psychologist will act simultaneously or jointly in relation to a group of children or to the entire population of PCS. When the activity pertains to an administratively identifiable group such as high school students or children in remedial teaching classes, enter the name of the group in Column A. When the activity pertains to the entire PCS population enter "PCS" in Column A.

COLUMN B—Activity

Enter in Column B a descriptive term regarding the activity being recorded. The psychologist's activities appear to fall into the following categories:

Test —includes the preparation, administration, evaluation and recording of tests.

Conf.—includes any conference or interview other than testing held by the psychologist as part of the functions of the position.

Tel. —includes any telephone call pertaining to the psychologist's functions irrespective of the source of origin or point of termination of the call.

Misc.—includes miscellaneous office work such as statistical reporting, correspondence, and other activity not included in above categories.

Note on time spent in waiting for an appointment or preparing for an activity: All time spent in actual waiting is to be included in the activity for which the waiting is done and should be charged to the child who is late for the appointment, unless the time is used for activity in another case. All preparation for activities is to be included in the activities for which the preparation is done.

COLUMN C—Activity with

This column is used to indicate the person(s) with whom the activity noted in Column B was carried on. Please CIRCLE THE APPROPRIATE LETTER IN COLUMN C to describe these persons.

Child	C
Social Work Supervisor or Caseworker Psychiatrist	S
PCS Staff other than above	P
Other	O
None	N

This column should indicate all persons involved in the activity. However, persons whose presence is casual or incidental to the purpose of the activity should not be included. *There should always be an entry in Column C.* If no other person is involved in the activity, the entry should be "none", i. e. a circle around the letter "N".

COLUMNS D, E, F—Duration of Activity

Columns D and E—Exact Time

Record in Column D the clock time at the beginning of an activity and in Column E the time when the activity is terminated. Time should be recorded to the nearest five minutes. For example, an activity beginning at 10:32 and ending at 11:17 should be recorded from "10:30" to "11:15". Time should be recorded at the beginning of and immediately after the completion of an activity. The accuracy of the research will depend on the extent to which time is recorded currently. Only such time that is recorded currently should be recorded in Columns D and E.

Column F—Estimated Time

Under some circumstances it is not possible to record currently the time invested in some activities. In those instances the estimated duration of the activity should be entered in Column F in minutes, rounded to the closest five minutes. For example "80" minutes or "115" minutes.

Recording of Joint Activities

Some of your activities may pertain to more than one child. It will be necessary to allocate the time spent on the activity to the indivdual child and such an allocation may be made either by you or by the research staff. In the event that your activity pertains, let us say, to three children you may enter their names in Column A. Draw a bracket around them and then proceed as if they were one child. In Columns D and E the entry will appear as follows:

From	*To*
10:10	....
....	....
....	11:30

The research staff will then arbitrarily assign an equal part of the elapsed total time (80 min.) to each one of the three children. (If the recording is not done immediately after the activity, the entry will be "80" in Column F and research staff action will again be as above.)

In some instances, however, an equal allocation of time will be less accurate than your estimate of time spent with each one of the children. When such is the case enter in Column F the estimated number of minutes, rounded to the nearest five minutes, devoted to each child.

COLUMN G—Remarks

You may enter in this column any brief comment which in your opinion will help the research staff better understand your entry on the line. You may expand on your remark in "Notes" but always place the line number before your explanation so it will be clear to what item your note refers. You may also use the space designated for "Notes" to elaborate on entries in the other columns of the card. When such elaboration is deemed necessary by you asterisk (*) the item and refer to it by line number in the notes.

12/16/54 CWLA—Children's Bureau

J. C. C. A.—INSTITUTIONAL COST STUDY

To: Assistant Director and Resident Supervisors
From: Martin Wolins
Re: Time Recording

Pretest results indicate that the nature of your activities with or on behalf of the individual child is not adequately portrayed by the recording procedures tested. This has been in spite of the fact that the type of recording undertaken was demanding of considerable time and self-discipline on your part. A decision has therefore been made to revamp completely the recording procedures applicable to you. You will be asked to record daily (instead of on a sample of days), but only those activities directly chargeable to the individual child at PCS. This will include activities with the child himself and activities with other persons (parents, legal authorities, staff, etc.) on behalf of the child. The specific procedure for recording will be as follows:

1. At the beginning of each month you will receive a supply of record sheets for that month. These sheets will list all of the children at PCS as of the last week of the preceding month. They will also provide entry space for your name, the date on which the sheet is completed and, next to the name of each child, for an entry on the amount of your time during that day directly chargeable to the given child.
2. You are being asked to complete a time record sheet for each day that you are on duty.
3. Record in the column designated "Time" the time, in minutes, that you have spent with or on behalf of the individual child or the child as a member of a small group of three or less. Do not record time spent with or on behalf of groups larger than three unless your time is spent in a formal activity for which we will supply you with special forms. The latter will apply to stamp club, choir, and similar activities of the resident supervisors. You may have several activities on behalf of the same child during the course of a day. Your entry should be the sum of the time spent which may be charged to that child for that day.

4. Because we need to know what the cost of your services is on an hourly basis we are asking you to indicate the time you are on duty. Please draw a vertical line through the time column in the right margin of the record sheet. This line should cross through all of the quarter hours during which you are on duty. (Night supervision is considered duty and should be counted as such as long as your presence at PCS is required. Do not include, however, time spent in pursuits of your own choosing such as meals, sleep, recreation which night supervision does not preclude.)
5. At the conclusion of the day or on the morning of the day following the day of recording, please deposit your completed record sheet in the Research box in the Administration Building.

To: Nurses and Dental Hygienist
From: Martin Wolins
Re: Maintenance of Daily Record of Activity

You are being asked to keep a daily record of time investment by the clinics and hospital staff on behalf of the individual child. This recording is to begin on January 1, 1955. The recording will be made on a Daily Record of Activity which will be provided by the research staff. This Record is, in essence, a list of the names of all of the children currently at PCS. Next to each name there are three time columns, two for entries of nurse's (or hygienist's) time, one for entry of physician's (or dentist's) time. All of the time entries will be made by the nurse (or hygienist). The exact procedure for record keeping will be as follows:

1. At the beginning of each month you will receive a supply of record sheets for that month. The sheets list all of the children at PCS as of the last week of the preceding month. (This may sometimes require that you add to the list very recent admissions.)
2. Daily, you will make entries on one record sheet which you date and identify as indicated.
3. Your recording includes all time in minutes you or the physician (dentist) have spent with, or on behalf of, the individual child. Note that the record provides one column for the physician and two time columns for you. Your two columns are there in the event that the child receives service from you more than once daily. In that event you may either add the second time expenditure to the first and enter the sum in the first column or make a new entry in the second column. *Never have two time entries for the same child unless you intend for us to sum them up.*
4. You make all the entries on the Daily Record of Activity entering in the appropriate columns your own time and the time of the physician (or dentist) spent on the given day on behalf of the child indicated.

5. It is not intended that your time record convey a full account either of your day or of your activity. You only enter time of activities with or for individual children. This will include clinic and hospital service, recording, consultations and conferences and various preparation which is clearly related to an individual child at PCS.
6. At the conclusion of each day or on the morning of the following, you will deposit the Daily Record of Activity in the Research box at the Administration Building.

To: Remedial Teachers
From: Martin Wolins
Re: Time Recording

Please check on the enclosed list* (one for each day) the names of the children who have attended your classes for the specified day. If one child attends more than one class on one day, place a check for each session he attended next to his name. Enter your name and the date at the top of each list.

At the end of each day deposit your record in the research envelope at the switchboard in the Administration Building.

To: Activity Staff
From: Martin Wolins
Re: Time Recording

Please check on the list of children's names† those who attend the activity you are conducting. When a child consumes an unusually high amount of your time, indicate how much time he uses next to his name. Return list to your supervisor.

CWLA—Children's Bureau

J. C. C. A. INSTITUTIONAL COST STUDY

Instructions for the Typists in Completion of WUS Inst. Work Record (Pre-Test).

The purpose of the Work Unit Study is to develop and test a method for determining the unit costs of providing institutional care. Unit Cost data have many uses, but we are primarily concerned now with obtaining these data in a way which will prove useful in performance-type budgeting, that is, in relating financial planning to program objectives.

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*Recording form identical with that used by Resident Supervisors, i. e., list of children in the institution as of beginning of each month.

†A current list of children in the institution was supplied for all sessions of activities.

The method which we are using is to analyze the type of service that the agency provides (i. e., institutional care) into the essential phases or *work units* which comprise the total process of providing a completed service. Staff members engaged in transcription of material will record on the Work Records the time invested in such operations. The Work Records will be used by the research staff, along with financial and other data to determine the costs of providing services to children.

Use of Work Record

In the back of each case folder pertaining to a Pleasantville case there will be a Work Record. Each staff member who transcribes recorded material for the case should enter the time he spends on each specific case. The staff member who files letters and reports which have been transcribed without the physical record in hand, should enter the time spent in typing the specific letter or report on the Work Record. This information may be secured from the daily "running record" already kept by clerical personnel. Time spent in taking dictation should be included in the typing time on a specific case.

DATE

In Column A record the date on which the clerical activity takes place.

ACTUAL TIME

Record in Column B the clock time at the beginning of an activity and in Column C the time when the activity is terminated. Time should be recorded to the nearest five minutes. For example, an activity beginning at 10:32 and ending at 11:17 should be recorded from "10:30" to "11:15". Time should be recorded at the beginning of, and immediately after the completion of an activity. The accuracy of the research will depend on the extent to which time is recorded currently. Only such time as is recorded currently should be recorded in Columns B and C.

ESTIMATED TIME

Under some circumstances, such as typing a report without the case folder in hand, it is not possible to record currently the time invested in a specific case. In those instances, the estimated duration of the activity should be entered in Column D in minutes, rounded to the closest five minutes. For example, "80" minutes or "115" minutes.

DATES COVERED

This column applies specifically to material transcribed on case records. The typist is to enter here the dates which the dictated material covers. These dates are now entered in the margin of each recording.

Transcription and other clerical activity in behalf of a child was noted by the clerical staff on this form

WUS Inst. Form 5
Work Record
Clerical Staff Child's Name ....

Date of transcription	Time			Dates Covered	Worker's Initials
	Actual		Estimated		
	From	To			
A	B	C	D	E	F
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

CHARACTERISTICS OF CHILDREN

Schedule

This schedule was completed by the child's caseworker. Section I was also completed by his cottage parents, his teacher and one resident supervisor.

INSTITUTIONAL COST STUDY

Section I. Child's Behavior Pattern

Child's Name ....

This check list has been designed to obtain a description of a child's characteristic behavior and personality. You are asked to *circle the number* preceeding any statements that are, in your opinion, *most precisely descriptive* of the child. Let your own observations and interpretations of the child in his present or most recent daily cottage living determine your choice of statements. It will be most desirable to have your *spontaneous reactions* to the following items.

1. Knows and accepts his capabilities and limitations.
2. Has a higher estimate of himself than his capability warrants.
3. Displays hostility toward people or animals or inanimate objects.
4. Tends to isolate himself from others (may be manifested by playing alone).
5. Is a bully or tease or otherwise provokes attack upon himself.
6. Reacts with hostility to any direction.
7. Is admired by other members of the cottage group.
   A. Influences the members of his cottage group.
8. Goes along with the group no matter what the consequences to himself may be.
9. Has no well-defined standards of his own and easily accepts the standards of others.
10. Feels accepted and wanted by the cottage parents.
    A. Feels accepted and wanted by other children.
    B. Feels accepted and wanted by adults generally.
11. Tries to dominate, control and exploit those around him.
12. Is influenced by others but influences no one in the group.
13. Makes efforts to interact with the group but is often excluded.
14. Considers any show of sentiment or emotion as weak and sissified.
15. Undervalues his own talents and abilities, as well as his material possessions.
    A. Values highly his own abilities and possessions but has little regard for those of others.
16. Always tries to be the strongest,shrewdest and most sought after.
17. Avoids hostile expressions for fear of losing his position in the group.
18. Tries to avoid outward expression of his personal feelings.
19. Handles his weak and helpless feelings by being dependent upon others.
20. Sees everyone as being hostile and against him.
21. Is a recognized leader in the cottage group.
22. Rebels against the limits placed upon him by the living situation.
23. Resists help from others.
24. Attempts to attract attention regardless of the consequences of the actions.
25. Accepts living situation and its limits.
26. Responds favorably to adult direction and influences the group.

Section II. Characteristics of the Child and the Familial Situation

Child's Name ....

Below are descriptions of children in institutional care. These are modeled after a previous study on institutional care. Please read the six categories and indicate by a check (in the margin) the one category which is most nearly applicable to this child.

1. ____ *Type A*—Boys and girls from 12 to 18 years of age presenting acute behavior disorders, and/or severe personality disturbances, have come, for the most part, into conflict with the community, home, or school. Here is found the child whose behavior is dangerous to himself or to others, who is likely to run afoul of the law, whose behavior does not respond to restriction or indulgence by adults around him. He seems the person for whom the ordinary rules of community life do not seem to hold.

2. ____ *Type B*—Children from unadjusted, disrupted families where normal patterns of family living have broken down because of instability of family relationships, death or illness of the parent, and other situations which no longer provide a constructive environment for the child's development. Although these children may present some behavior and personality disorders, they do not, on the whole, suffer from serious character deviations.

3. ____ *Type C*—Seriously disturbed pre-adolescent children, ages roughly, 6–12. These children have deep-seated and severe emotional difficulties, unlike those described in "A" (aggressive-delinquent) or in "B" (unadjusted). Many children of this type are diagnosed as suffering from "childhood schizophrenia" or "incipient schizophrenia." These children often show disturbing symptoms such as spitting, drooling, unnatural laughter, crying spells, soiling, wetting, tics, and a variety of unsupported fears. The home situation of many such children is seriously deprived. The child may be unwanted or the familial structure may be disrupted by divorce or separation.

4. ____ *Type D*—The severely disturbed adolescent who finds it difficult to develop feelings of friendship, attachment or love for others. He is either dependent or aggressive. Strongly egocentric, he withdraws from social contacts, is moody, irritable, and often presents bizarre behavior such as nail-biting, thumb-sucking, wetting and soiling.

5. ____ *Type H*—Children who display no specific abnormal characteristics. Most of them get along well with people, are of average intelligence, and have apparently no deep-seated emotional disturbances. The parents of these children are often weak and ineffectual, their lives may be disturbed and distorted and their competence as parents is low. These children are in placement because the situation is out of hand and continued life at home or in a foster home is not feasible.

6. ____ *Type J*—Children with no noticeable emotional problems and with essentially sufficient intact homes that are temporarily broken by the illness or confinement of one or both of the parents.

0. ____ None of the above categories apply. Explain briefly.

Section III. Diagnostic Classification

Child's Name ....

Please classify this child in terms of the diagnostic descriptions given below. Check the description most nearly applicable to this child.

Behavior Disorders:

1. ____ Major symptomatology in area of "acting out" and delinquent patterns. Group comprises children where character disorders, conduct and habit disorders including truancy, stealing, runaways, aggressiveness and adjustment reactions related to poor environmental and familial experiences are paramount. Neurotic traits also part of the symptom picture.

Neurotic Disturbances:

2. ____ Specific symptomatology—marked anxiety, compulsions, obsessions, psychosomatic or conversion symptoms, mild depression, phobic reactions characterized by internalized conflict.

Psychotic Disorders:

3. ____ Schizoid and schizophrenic responses, withdrawals, confusion, autistic, hallucinatory or bizarre behavior, ideas of reference, paranoid thinking, severe depressive manifestations.

Sociopathic Personality:

4. ____ Seemingly guiltless, highly aggressive asocial reactions with little evidence of anxiety. Dominated by pleasure seeking and lacking in sense of judgement and responsibility.

Organic Disturbances:

5. ____ Child's behavior seems to have primary causation in organicity. Convulsive disorders, epilepsy or epileptic equivalent, post encephalitic conditions and other malfunctions due to organicity.
0. ____ None of the above categories apply. Explain briefly.

Section IV. Familial Situations

Child's Name ....

Please check the one familial situation most closely approaching that of this child.

1. ____ The family in which exists a chronic long-time violence, both physical and emotional, by a parent who is either criminal, alcoholic, or psychotic.
2. ____ The family in which the parents' mental health equilibrium is maintained by their feeding on the child emotionally, without giving back enough to the child to outweigh the destructiveness wrought by their dependency on the child. In this group one sees the symbiotic parent-child relationship wherein it is probable that the mother has an underlying psychotic structure. The fathers in this group are usually almost totally indifferent or ineffectual.
3. ____ Families with highly narcissistic, immature parents who are willing to allow their children to be reared by foster-families (or institutions) but are not ready to relinquish them at all. These parents were originally very much deprived and have come to handle their own early deprivations by learning to give to themselves before giving to anyone else. Such parents can rather readily forget their guilt over placing their children when the latter are out of sight, and they just as easily appease their own guilt with lavish gifts, by rash promise of reuniting the family, or in other similar ways.
4. .... Families in which there has formerly been a kind of neurotic equilibrium in the parent-child relationship which afforded an atmosphere somewhat conducive to the child's personality growth but in which this equilibrium has broken down. The breakdown may have been caused by the continual grinding away of internal conflicts and from the energy expended in keeping them repressed and defended. Or the breakdown may have ensued following unexpected tragedies or crises in reality situations.
5. .... Families with an essentially healthy history in which dissolution or disorganization has set in as a result of intra-familial conflict, divorce, serious illness or death of the parent(s).
6. .... Familial situation unclassifiable or nonexistent.

Section V. Other Characteristics of the Family, the Child or the Situation

Child's Name ....

Please check or enter the applicable answers.

Child's Immediate Family

1. .... Intact natural parental unit (both natural parents in home)
2. .. . Intact parental unit but may include stepparent
3. .... Parental unit broken by divorce, illness, death or other cause, only mother in the home
4. .... Parental unit broken by divorce, illness, death or other cause, only father in the home
5. .... Neither parent in home but relatives provide child with home
6. .... No parents, no relatives
7. .... Not known

One or more than one member of the child's family of orientation (i. e. the persons of whom he thinks as constituting his family) is non-Jewish?

1. .... Yes 2. .... No 3. .... Unknown

One or more than one member of the child's family of orientation was born outside of the United States?

1. .... Yes 2. .... No 3. .... Unknown

The child was born outside of the United States.

1. .... Yes 2. .... No 3. .... Unknown

Present occupation of the child's father or the male serving in loco parentis is:
Present occupation of the child's mother or the female serving in loco parentis is:

Hospitalization of Parents

1. .... Mother hospitalized
2. .... Father hospitalized
3. .... Both parents hospitalized
4. .... Neither hospitalized
5. .... No parents

Primary Reason for Placement (as given on face sheet) (Enter only if known to you without reference to record.)

1. .... Situational problem in the home (illness, death, divorce, or otherwise caused disruption of the home)
2. .... Problem in the relationship between parent and child may be lodged in the behavior of the parent or of the child or both
3. .... Problem in the behavior of the child
4. .... Problem in the behavior of the parent (neglect, physical abuse, incompetence)
5. .... Other

Source of Referral (Enter only if known to you without reference to record)

1. .... Department of Welfare
2. .... Court or court agency (probation office, etc.)
3. .... Social agency other than either above (incl. schools)
4. .... Non-agency source (professional person, friend, self, etc.)
5. .... Unknown

Coding Instructions

Section I (Columns 26–34)

Column		*Items included*
26	Moving away	4, 6, 15, 18, 23
27	Moving toward	9, 17, 19
28	Moving against	11, 14, 16, 20, 22
29	Security	10, 10a, 10b, 25, 26
30	Insecurity	3, 5, 24
31	Adequacy	1
32	Inadequacy	2
33	Leader-central	7, 7a, 21
34	Follower-peripheral	8, 12, 13

Code this section in the following manner:

a. Determine number of responding staff persons for the given child.

b. Multiply number of items in the characteristic by number of respondents. We will call this TPR (Total possible responses). Thus if four persons respond and the characteristic is "Moving away" TPR = 20.

c. Count the number of actually checked items in the characteristic.

d. If the items counted are equal to ½ TPR or more consider the characteristic as one possessed by the child.

e. Code possession of the characteristic 3
Less than ½ and more than ⅕ TPR checked 2
No items checked as ⅕ TPR or less 1

f. Follow the same procedure for all characteristics (Columns 26–34).

Section II (Column 35)

Code is identical with number preceding each type.
Circle the checked type in red pencil or ink.

Section III (Column 36)

Instructions identical with those of Section II.

Section IV (Column 37)

Instructions identical with those of Section II.

Section V (Columns 38–45)

Column 38 Parental unit

Code in accordance with the numbers in the left hand margin. Circle in red number checked. Add a code 8 for any situation *other* than those listed.

Column 39 Other-religion members in family of orientation

1. Yes
2. No
3. NA

Column 40 Ethnic members of family of orientation

1. Yes
2. No
3. NA

Column 41 Child's birthplace outside of U. S.

1. Yes
2. No
3. NA

Column 42 Social class of family based on parental occupations

For any case for which the occupation of the father and mother is available code both in accordance with the following classification, sum the total of their scores and divide by two. Round the resulting value to the nearest whole number. Always round midpoint positions in the direction of the father's score. When either parent's occupation is N. A. compute the total score on the basis of the available occupation. In case of doubt as to location of a given occupation consult the Census Alphabetical Index of Occupations and Industries, 1950. Insert the code (the group number) in the left hand margin opposite the two items on occupation.

OCCUPATIONAL SCALE

General Directions: Look up the father's (or father substitute's) and mother's occupation in the Census Alphabetical Index of Occupations and Industries, 1950, to determine the Census classification of the occupation. This done, determine in which of the eight groups listed below the occupation falls.

Group 8. A. All professional, technical, and kindred workers as listed in the 1950 Census Alphabetical Index of Occupations and Industries, (Census Code 0) *except the following:*

Accountants and auditors *not* CPAs
Airplane pilots and navigators, Census Code 002
Athletes, Census Code 005
Chiropractors, 008
Clergymen ministering to revivalist, "emotional," churches, e. g. Church of God, Pentacostal, Nazarene, Jehovah's Witnesses, etc.
Dancers and dancing teachers, 031
Designers, 033 (if professionally trained engineer, code in Group 8)
Dieticians and nutritionists, 034
Draftsmen, 035
Entertainers (n. e. c.), 051
Foresters and conservationists, 053
Funeral directors and embalmers, 054
Librarians, 056, except directors of large libraries
Musicians and music teachers, 057
Nurses, 058
Optometrists, 070
Pharmacists, 073
Photographers, 074
Radio operators, 076
Religious workers, 078
Reporters (036, part)
Social workers not professionally trained
Sports instructors and officials, 091
Surveyors, 092
Teachers, 093, but not high school principals
Technicians, medical and dental, 094
Technicians, testing, 095
Technicians (n. e. c.), 096
Therapists and healers (n. e. c.), 097

B. *Include* in 8, military officers, grade of Major and above, Naval officers, grade of Lieutenant Commander and higher.

C. *Include* in 8, proprietors, managers, and major officials in large enterprises (for example, employing or in charge of 20 or more employees).

D. *Include* individuals living on accumulated or inherited wealth, regardless of occupational data.*

---

*NOTE that pensioners, annuitants, and those who live on insurance should be classified by former occupation of (former) head of household. These persons, as distinguished from 8D above, have only *small* or *marginal* incomes.

Group 7. A. Professional, technical and kindred workers *excepted* from Group 8A, above.
B. Armed Forces: Captains, First and Second Lieutenants, Lieutenants Sr. Grade and Jr. Grade, Ensigns, Warrant Officers.
C. Proprietors, managers and officials of small enterprises (less than 20 employees).
D. Insurance agents and brokers (Census Code 450)
Real estate agents and brokers (Census Code 470)
Stock and bond salesmen (Census Code 480)

Group 6. Clerical, sales and kindred workers, as listed in Census Index (Census Codes 3 and 4)
except: Occupations specified in 7D, above.

Group 5. Craftsmen, foremen, and kindred workers, as listed in Census Index (Census Code 5)
plus: Armed Forces—non-commissioned officers.

Group 4. Operatives, and kindred workers, as listed in Census Index (Census Code 6)
plus: Firemen
Members of Armed Forces below non-com. grades
Marshalls, constables, detectives, policemen.

Group 3. Private household workers and service workers, as listed in Census Index (Census Code 7) *except* firemen and policemen.

Group 2. Laborers as listed in Census Index (Codes 8 and 9)

Group 1. Relief recipients
on ADC, OAA, GA, but not Blind Aid (for these, follow occupation category)

Group 0. Not available

Column 43 Hospitalization of Parents
Circle in red the number of the checked item.

Column 44 Primary Reason for Placement
Circle in red the number of the checked item.

Column 45 Source of Referral
Circle in red the number of the checked item.

Column 46 Sex
1. Male
2. Female

Column 47 Age in years as of June 30, 1955. Round age to nearest whole year as of the above date and code as follows:

	Code
7 years	7
8 years	8
9 years	9
10 years	0
11 years	1
12 years	2
13 years	3
14 years	4
15 years	5
16 years	6

Column 48 Intelligence Level

Obtain measure of intelligence from psychologist or from record. Use verbal score where more than one is given. Code as follows:

IQ	*Code*
55–64	6
65–74	7
75–84	8
85–94	9
95–104	0
105–114	1
115–124	2
125–134	3
135–144	4
145–154	5
N. A	X

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VII.

Acknowledgments

For the study of costs of care in an institution for children, the late Mr. Louis H. Sobel, former Executive Director of the Jewish Child Care Association, made a research proposal a reality. He took the initiative in obtaining funds and assuring a host setting. Special thanks are due Mr. Morton L. Deitch, President, and to other members of the Board of the Jewish Child Care Association, who opened for study one of its Divisions, the Pleasantville Cottage School. The present Executive Director of the Jewish Child Care Association, Mr. Louis L. Bennet, has made many comments and suggestions on the report that have been most helpful. The study has benefited greatly by the interest of Mrs. Jerome I. Udell, Chairman of the Pleasantville Cottage School Committee of the Board, from the wisdom of the institution's director, Mr. Jacob Hechler, and from the full cooperation of the entire staff.

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